



Dear Space Elevator Researcher – A summary of papers and books about space elevators is shown below with a breakout as shown in the table of categories. Most are on the web already, but if you have trouble finding an article, [or wish to update the list] please email us and we will try to connect you with the author – inbox@isec.org. [as of 10 Sept 2017]

CATEGORIES

BASELINE DOCUMENTS

ISEC STUDIES

ARCHITECTURE

SYSTEMS ENGINEERING

MANAGEMENT

TETHER MATERIALS AND DESIGN

ENVIRONMENTAL [DEBRIS, RADIATION, Ox,
ELECTROMAGNETIC]

TETHER DYNAMICS AND ELECTRODYNAMICS

IN THE ATMOSPHERE [EARTH PORT, MULTI-STAGE,
HQ/POC]

TETHER CLIMBERS DESIGN AND POWER

NODES [GEO, APEX ANCHOR, GATES & CENTERS]

LUNAR AND MARS ELEVATORS

MISCELLANEOUS



BASELINE DOCUMENTS

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Edwards, B. and Laine, M. (2003), “The Space Elevator”. Available at: <http://www.mill-creek-systems.com/HighLift/chapter3.html>

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Raitt, David, Space Elevators: A History, ISEC Report 2017.

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, Science Deck (2013) ISBN-13: 978-2917761311

Swan, P., David Raitt, Space Elevator – 15 Year Update, Journal of British Interplanetary Society, Vol 69, No 06/07, Dec 2016.



ISEC STUDIES

Swan, Peter, Robert “Skip” Penny, and Cathy Swan, Space Elevator Survivability – Space Debris Mitigation, Lulu.com, 2011.

Penny, Robert. Swan, Peter, & Cathy Swan, “Space Elevator Concept of Operations,” ISEC Position Paper #2012-1, International Space Elevator Consortium, Fall, 2013.

Penny, R., P. Swan, C. Swan, J. Knapman, P. Glaskowsky, Design Considerations for Space Elevator Tether Climbers, ISEC Study Report, www.lulu.com, 2014

Fitzgerald, M, R. Penny, P. Swan, C. Swan, Space Elevator Architectures and Roadmaps, ISEC Study Report, lulu.com, 2015

Fitzgerald, Michael, Vern Hall, Cathy Swan, Peter Swan, Design Considerations for Space Elevator Apex Anchor and GEO Node, ISEC Study Report 2017.

Hall, Vern, R. Penny, P. Glaskowsky, S. Schaeffer, Design Considerations for Space Elevator Earth Port, ISEC Study Report, www.lulu.com, 2016.

Swan, Peter, Michael Fitzgerald, “Space Elevator GEO Node and Apex Anchor Architectures,” IAC-17, paper and presentation, Adelaide, Australia, Sept 2017.



ARCHITECTURE

Aleksandrov, Oleg, VERSION OF THE SPACE ELEVATOR, IAC-14, paper and presentation, Toronto, Oct 2014.

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Edwards, Bradley, The Space Elevator, NIAC Phase I Study Report, 2000.

Edwards, B. The Space Elevator, NIAC Phase II Final Report, 2003.

Fitzgerald, M, R. Penny, P. Swan, C. Swan, Space Elevator Architectures and Roadmaps, ISEC Study Report, lulu.com, 2015

Fitzgerald, Michael, “Galactic Harbour, a Strategic Vision Emerges,” Presentation at the National Space Society Conference, St. Louis, May 2017.

Fitzgerald, Michael, “Space Elevator Sequences and Initial Operational Capability,” Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Fitzgerald, Michael, “Strategic Approach to the Space Elevator,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Fitzgerald, Michael, “Review of Architectural Notes,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Fitzgerald, Michael, “Space Elevator Delineation,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Gardner, J. (2003), “Where on Earth? Choosing an Anchor Point,” 2nd Annual International Space Elevator Conference, Sante Fe, NM. Oct 2003

Gassend, B. (2004), “Non-Equatorial Uniform-Stress Space Elevator,” 3rd Annual International Space Elevator Conference, Washington DC, 20 June 2004.

Gassend, B. (2004), “Exponential tethers for accelerated space elevator deployment”. In Proc. of 3rd International Space Elevator Conference, June 2004.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Ishikawa Yoji, Obayashi Corporation’s Space Elevator Construction Concept, Journal of British Interplanetary Society, Vol 69, No 06/07, Dec 2016.

JSTM (2010), “Strategic Technology Road Map 2010”, Ministry of Economy, Trade and Industry of Japan. Available at: http://www.meti.go.jp/policy/economy/gijutsu_kakushin/kenkyu_kaihatu/str2010.html (In Japanese only)



Laine, M. (2006), "LiftPort Group Space Elevator Road Map." LiftPort, 2006

Lang, D. D., "Space elevator initial construction mission overview", URL:
<http://home.comcast.net/~GTOSS/S> (cited 1 Feb. 2010)

Merrow, E. (2011), "Industrial Megaprojects, Concepts, Strategies, and Practices for Success". John Wiley & Sons, 2011

METI. (2010). "Strategic Technology Roadmap". Ministry of Economy, Trade & Industry of Japan, 2010. Available (in Japanese only) at:
http://www.meti.go.jp/policy/economy/gijutsu_kakushin/kenkyu_kaihatu/str2010.html

METI. (2010) "Technology Strategy Map", Ministry of Economy, Trade and Industry of Japan, 2010. Available at:
http://www.meti.go.jp/policy/economy/gijutsu_kakushin/kenkyu_kaihatu/str2010.html

Nogawa, Yuichiro, Space Elevator Concept Comparison Summary, IAC-14, paper and presentation, Toronto, Oct 2014.

Pasko, Vadym, Space Elevator. Alternative Design Solutions., IAC-15, paper and presentation, Jerusalem, Oct 2015.

Pearson, J., E. Levin, J. Oldson, and H. Wykes, Lunar Space Elevators for CISLUNAR Space Development, NIAC Phase I Final Technical Report, 2 May 2005.

Pullum, Laura, Space Elevator's Architectural View – 1, IAC-04, paper and presentation, Vancouver, Oct 2004

Ragan, P. and B. Edwards, Leaving the Planet by Space Elevator, www.lulu.com, 2006.

Shelef, B., "The Space Elevator Feasibility Condition", Climb Journal, Volume 1, Number 1, p. 87. And in - Spaceward Foundation, 2008. Available at: <http://www.spaceward.org/elevator-library#SW>

Shelef, B., "Segment Based Ribbon Architecture", In Proc. of 3rd International Space Elevator Conference, June 2004.

Shelef, B., "A Solar-Based Space Elevator Architecture," Spaceward Foundation, 2008.
<http://www.spaceward.org/elevator-library#SW>

Squibb, Gael, Daryl Boden, and Wiley Larson. Cost Effective Space Mission Operations, McGraw Hill, 1996.

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

Swan, Peter, Safe Space Elevator – An Expectation to be Met Through a System Architecture Approach, IAC-04, paper and presentation, Vancouver, Oct 2004.



Swan, Peter, Space Elevator Vision - An Enabler, IAC-06, paper and presentation, Valencia, Oct 2006

Swan, Peter and Cathy Swan, Space Elevator Systems Architecture, Lulu.com publishers, 2007.

Swan, Peter, "Space Elevator 101, Status and Architectures," Presentation at the National Space Society Conference, St. Louis, May 2017.

Swan, Peter, Role of a Space Elevator Systems Architect, IAC-07, paper and presentation, Naples, Oct 2007.

Swan, P., Space Elevator Current and Future Thrusts, Journal of British Interplanetary Society, Vol 69, No 06/07, Dec 2016.

Swan, Peter, Michael Fitzgerald, "How the Space Elevator Grew into a Galactic Harbour," IAC-17, paper and presentation, Adelaide, Australia, Sept 2017.

TSM (2010), "Technological Strategy Zmap 2010 – Energy", Ministry of Economy, Trade and Industry. Available at:
http://www.meti.go.jp/policy/economy/gijutsu_kakushin/kenkyu_kaihatu/str2010download.html

Tsuchida, Akira, "A Space Elevator Roadmap 2010," 2010 IAC, Prague, Oct 2010.

Tsuchida, Akira, Space Elevator Road Map 2011, IAC-11, paper and presentation, Cape Town, Oct 2011.

Tsuchida, Akira, Space Elevator Roadmap 2012, IAC-12, paper and presentation, Naples, Oct 2011.

Tsuchida, Akira, Japanese Space Train concept, 2009 IAC, paper and presentation, Daejeon, Oct 2009.

Tsuchida, Akira, et al. (2011), "Space Elevator Road Map 2011", 62nd International Astronautical Congress, Cape Town, Republic of South Africa, 2011

Tsuchida A. et al (2009), "New Space Transportation System-Space Train (Elevator) : World trends and Japanese Space Train Concept",

Tsuchida A. et al, "New Space Transportation System-Space Train (Elevator) : World trends and Japanese Space Train Concept", Technical report of IEICE. SANE 109(101), 93-98, 2009-06-18.

Technical report of IEICE. SANE 109(101), 93-98, 2009-06-18

USAF (2012), "Energy Horizons", United States Air Force, Energy S&T Vision 2011-2026, AF/ST TR 11-01 31 January 2012, Pgs. 21-24.

Welch, J. (2012), http://thinkexist.com/quotation/good_business_leaders_create_a_vision-articulate/151585.html, June 2012.



SYSTEMS ENGINEERING

AIAA/INCOSE. (1997) "SE Primer - Systems Engineering, A briefing", August 1997.

Angel, R. (2006), "Feasibility of Cooling the Earth with a Cloud of Small Spacecraft near L1," Proceedings of the National Academy of Sciences, v 103, n46, 2006 November 14, 2006. Pp. 17184–17189. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1859907>

Aravind, P.K., The physics of the space elevator, Am. J. Phys., 75 (2007), pp. 125–130

Bumgardner, Marvin, Optimization of Low-Thrust Orbit Transfer During Initial Ribbon Deployment for the Space Elevator, IAC-04, paper and presentation, Vancouver, Oct 2004.

Chapman, P. K. (2010), "Deploying Sunsats", Online Journal of Space Communications, Issue 16, Winter 2010: Solar Power Satellites. Available at: <http://spacejournal.ohio.edu/issue16/chapman.html>

Chati, Y.S., SPACE ELEVATOR: PHYSICAL PROPERTIES AND TRANSPORTATION SCENARIOS, CLIMB, Vol. I, 2011.

Cohen, S. and Misra, A. K., "Satellite Placement Using the Space Elevator," Climb, Vol. 2, No. 1, 2013.

Dempsey, J. SPACE ELEVATOR DEPLOYMENT, CLIMB, Vol. II, 2013.

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Fitzgerald, M, R. Penny, P. Swan, C. Swan, Space Elevator Architectures and Roadmaps, ISEC Study Report, lulu.com, 2015

Fitzgerald, Michael, "Space Elevator Sequences and Initial Operational Capability," Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Hall, Vern, R. Penny, P. Glaskowsky, S. Schaeffer, Design Considerations for Space Elevator [Earth Port](#), ISEC Study Report, www.lulu.com, 2016

Hein, Andreas, Producing a Space Elevator Tether using a NEO: A Preliminary Assessment, IAC-12, paper and presentation, Naples, Oct 2011.

Hinton, G., SEVEN DEADLY ASSUMPTIONS ABOUT SPACE ELEVATORS, CLIMB, Vol. I, 2011.

INCOSE. (2006), "Systems Engineering Handbook", v3, June 2006

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Iwase, Satoshi, Comfortableness in Space Elevator — Physiological Challenge, IAC presentation and paper, IAC-10 Session D4.



Keshmiri, M. and Misra, A.K., "On the deployment of a subsatellite in a space elevator system", 63rd International Astronautical Congress, Naples, Italy, October 2012, Paper No. IAC-12.D.4.3.8.

Keshmiri, M. and Misra, A.K., "On the deployment of a subsatellite in a space elevator system", 63rd International Astronautical Congress, Naples, Italy, October 2012, Paper No. IAC-12.D.4.3.8.

Knapman, John, Space Elevator Technology and Research, Journal of British Interplanetary Society, Vol 69, No 06/07, Dec 2016.

Lang, David, SPACE ELEVATOR INITIAL CONSTRUCTION MISSION OVERVIEW, CLIMB, Vol. II, 2013.

Lansdorp, Bas, Design of High-Tension Elastically Deforming Space Tether Deployer, IAC-04, paper and presentation, Vancouver, Oct 2004.

Larson, Wiley., Space Mission Analysis and Design, Space Technology Library, Microcosm Press, 1999.

Larson, W. et al. (2009) "Applied Space Systems Engineering", McGraw Hill, 2009.

Larson, W. et al (2009), "Applied Space Systems Engineering", McGraw Hill, Boston, 2009. Pg. 304.

Larson, Wiley, Doug Kirkpatrick, Jerry Sellers, L. Dale Thomas, and Dinish Verma, **Applied Space Systems Engineering**, McGraw Hill, 2009.

Long, Bryan, "Approach towards governments to support this major systems of systems development," Presentation at the National Space Society Conference, St. Louis, May 2017.

Laubscher, Bryan, Space Elevator Systems Engineering Analysis (LA-UR-04-1035), IAC-04, paper and presentation, Vancouver, Oct 2004

Meulenberg, Andrew, LEO-based space-elevator development using available materials and technologies, 2009 IAC, paper and presentation, Daejeon, Oct 2009.

Meulenberg, Andrew, sling-on-a-ring: a realizable space elevator to leo?, IAC-08, paper and presentation, Glasgow, Oct 2008.

Penny, Robert. Swan, Peter, & Cathy Swan, "Space Elevator Concept of Operations," ISEC Position Paper #2012-1, International Space Elevator Consortium, Fall, 2013.

Penny, R. and Jones, R. (1983), "A Model for Evaluation of Satellite Population Management Alternatives", AFIT Master's Thesis, 1983.

Penny, R., P. Swan, C. Swan, J. Knapman, P. Glaskowsky, Design Considerations for Space Elevator Tether Climbers, ISEC Study Report, www.lulu.com, 2014

Penny, Robert, Design Considerations for Geo Node, Apex Anchor and Communications Architecture ISEC Study underway 2017.



- Pullum, Laura, Systems Engineering for the Space Elevator – Complexity, IAC-05, paper and presentation, Fukuoka, Oct 2005.
- Robinson, Peter, Space Elevator Simulation: Validation and Metrology, Via Ad Astra, Vol 1, 2015.
- Shelef, B. (2004), “Segment Based Ribbon Architecture”, In Proc. of 3rd International Space Elevator Conference, June 2004.
- Shelef, B. (2011), “The Space Elevator Feasibility Condition”, Climb Journal, Volume 1, Number 1, p. 87.
- Shelef, B. (2008a), “Space Elevator Power System Analysis and Optimization, Spaceward Foundation, 2008. Available at: <http://www.spaceward.org/elevator-library#SW>
- Shelef, Ben, SPACE ELEVATOR POWER SYSTEM ANALYSIS AND OPTIMIZATION, CLIMB, Vol. II, 2013.
- Shelef, B. (2008b), “The Space Elevator Feasibility Condition”, Spaceward Foundation, 2008. Available at: <http://www.spaceward.org/elevator-library#SW>
- Shelef, B., “The Space Elevator Feasibility Condition”, Climb Journal, Volume 1, Number 1, p. 87. And in - Spaceward Foundation, 2008. Available at: <http://www.spaceward.org/elevator-library#SW>
- Shelef, Ben, ASTEROID SLINGSHOT EXPRESS - TETHER-BASED SAMPLE RETURN, CLIMB, Vol. II, 2013.
- Smitherman, David, Technology Development and Demonstration Concepts for the Space Elevator, IAC-04, paper and presentation, Vancouver, Oct 2004
- Swan, Peter, Space Elevator Base Leg Architecture, IAC-04, paper and presentation, Vancouver, Oct 2004.
- Swan, Peter, Robert “Skip” Penny, and Cathy Swan, Space Elevator Survivability – Space Debris Mitigation, Lulu.com, 2011.
- Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.
- Takahashi, Sakurako, Critical technologies for Space Elevator - Status report of IAA SG3.24, IAC-16, paper and presentation, Guadalajara, Oct 2016
- Tsuchida, Akira, Preliminary Systems Requirements for the Space Toilet on the Space Train, IAC presentation and paper, IAC-10 Session D4.
- Wertz, James R. (2011), “Space Mission Engineering: The New SMAD,” Microcosm Press, Hawthorne Calif., 2011.



Woo, Pamela, Energy Considerations in the Partial Space Elevator, IAC-13, paper and presentation, Beijing, Oct 2013.



MANAGEMENT

- Artsutanov, Y. (1960), "Into the Cosmos by Electric Rocket," Komsomolskaya Pravda, 31 July 1960. (Contents described in English, Lvov in Science, 158, 946-947, 1967.)
- Angel, R. (2006), "Feasibility of Cooling the Earth with a Cloud of Small Spacecraft near L1," Proceedings of the National Academy of Sciences, v 103, n46, 2006 November 14, 2006. Pp. 17184–17189. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1859907>
- Boada, Ivan, Our Answer to NASA's Beam Power Challenge, IAC-06, paper and presentation, Valencia, Oct 2006.
- Chapman, P. K. (2010), "Deploying SunSats", Online Journal of Space Communications, Issue 16, Winter 2010: Solar Power Satellites. Available at: <http://spacejournal.ohio.edu/issue16/chapman.html>
- Chase, Frank, ISEC THEME POSTERS, CLIMB, Vol. II, 2013.
- Clarke, A. C. (1979), "The Fountains of Paradise", Harcourt Brace Jovanovich, New York, 1979.
- Cohen, S. and Misra, A. K., "Satellite Placement Using the Space Elevator," Climb, Vol. 2, No. 1, 2013.
- Cohen, Stephen and Arun Misra, SATELLITE PLACEMENT USING THE SPACE ELEVATOR, CLIMB, Vol. II, 2013.
- Dillon, S. (1892), "Historic moments: Driving the last spike of the Union Pacific". Scribner's Magazine, August 1892. pp. 25-259. Available at: <http://www.unz.org/Pub/Scribners-1892aug-00253>
- Dodrill, Mark, The ISEC History – Interview with Vern Hall, Via Ad Astra, Vol 1, 2015.
- Edwards, B, et.al., The Space Elevator, NIAC Study – the NASA Institute for Advanced Concepts Phase I, Oct. 2000. <http://www.niac.usra.edu/studies/472Edwards.html>
- Edwards, B, et.al., The Space Elevator, NIAC Phase II Jan. 2003. <http://www.niac.usra.edu/studies/521Edwards.html>.)
- Edwards, Bradley, The Space Elevator and NASA's New Space Initiative, IAC-04, paper and presentation, Vancouver, Oct 2004.
- Edwards, Bradley, The Space Elevator Program at ISR, IAC-04, paper and presentation, Vancouver, Oct 2004.
- Edwards, Bradley, Private Investment and Space Elevator Development Activities, IAC-05, paper and presentation, Fukuoka, Oct 2005.
- Edwards, B. and Ragan, P. (2006), Leaving the Planet by Space Elevator, Lulu.com



Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Forest, Kevin, “New ISEC Website – Space Elevator Home,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Gilbertson, R., FINDING AND TRANSLATING ARTSUTANOV’S ORIGINAL SPACE ELEVATOR ARTICLE FROM 1960, CLIMB, Vol. I, 2011.

Harris, R. (2012), “Rio Environment Meeting Focuses On 'Energy for All'” 19 June 2012. Available at: <http://www.wbur.org/npr/155294726/rio-environment-meeting-focuses-on-energy-for-all>

Isaacs, J., Vine, A. C., Bradner, H. and Bachus, G. E. (1966), "Satellite Elongation into a true Sky-Hook," Science, 151, 682-683, 1966.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Kai, Sunao, The Law of the Space elevator -- The relationship to the Law of the Space, the Sea and the Sky, IAC-12, paper and presentation, Naples, Oct 2011.

Kai, Sunao, “Law and Structure of the Space Elevator,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Kirchner, Stefan, International Law and the Construction and Operation of a Tethered Space Elevator, Via Ad Astra, Vol 1, 2015.

Knapman, John, Space Elevator Research, IAC-14, paper and presentation, Toronto, Oct 2014.

Laubscher, Bryan, The Space Elevator and Planetary Defense, IAC-05, paper and presentation, Fukuoka, Oct 2005.

Laubscher, Bryan, “Space Elevator System Overview,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Loubeyre, R., QUESTIONING THE SPACE ELEVATOR LEGAL RISK MANAGEMENT REGIME, CLIMB, Vol. I, 2011.

Mankins, J. (2011), “Space Solar Power, The First International Assessment Of Space Solar Power: Opportunities, Issues And Potential Pathways Forward”, IAA, October 2011.

Martin, Nichlos, Early Space Elevator History – Tsiolkovsky, Artsutanov and Pearson, Via Ad Astra, Vol 1, 2015.

Matloff, Gregory, The Partial Space Beanstalk: Its Application to Space Migration and Commerce. IAC-08, paper and presentation, Glasgow, Oct 2008.

Nelson, Paul, Releasing Earth Space Elevator Climbers into Geostationary Orbit, IAC-05, paper and presentation, Fukuoka, Oct 2005.



NTRM (2012), "NASA Space Technology Roadmaps and Priorities: Restoring NASA's Technological Edge and Paving the Way for a New Era in Space," National Academy of Science Report, Washington D.C., 2012.

National Space Society. (2007), "Space Solar Power: An Investment for Today – An Energy Solution for Tomorrow," National Space Society, Oct. 2007

Pearson, J., "The Orbital Tower: A Spacecraft Launcher Using the Earth's Rotational Energy," Acta Astronautica, Vol. 2, pp. 785-799, Sep/Oct 1975.

Pearson, Jerome, The real history of the space elevator, IAC-06, paper and presentation, Valencia, Oct 2006.

Pearson, Jerome, THE REAL HISTORY OF THE SPACE ELEVATOR, CLIMB, Vol. II, 2013.

Penny, Robert. Swan, Peter, & Cathy Swan, "Space Elevator Concept of Operations," ISEC Position Paper #2012-1, International Space Elevator Consortium, Fall, 2013.

Penny, Robert, Space Elevator CONOPS Initial Thinking, IAC-12, paper and presentation, Naples, Oct 2011.

Purang, Deepak (n.d.), "Space sunshade may one day reduce global warming." Editorial. Available at: http://www.streetdirectory.com/travel_guide/14921/gadgets/space_sunshade_may_one_day_reduce_global_warming.html

Raitt, David, Space Elevators: A History, ISEC Study Report, May 2017.

Raitt, David, The Space Elevator: Economics and Applications, IAC-04, paper and presentation, Vancouver, Oct 2004.

Raitt, David, The Space Elevator: Historical and Future Perspectives, IAC-05, paper and presentation, Fukuoka, Oct 2005.

Raitt, D. (2005), "The Space Elevator: its Place in History, Literature and the Arts. In: Proceedings of 56th International Astronautics Congress, 17-21 October 2005, Fukuoka, Japan. IAC, 2005. IAC-05-D4.3.02

Raitt, D. and Edwards, B. (2004), "The Space Elevator: Economics and Applications." In: Proceedings of 55th IAC, 4-8 October 2004, Vancouver, Canada. IAC, 2004. IAC-04-IAA.3.8.3

Raitt, David - "A Very Short History of Space Elevators," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Schlusser, Eugene and Natalie Sherman, Conversations with Yuri Artsutanov, Via Ad Astra, Vol 1, 2015.

Semon, Ted, A brief history of the Space Elevator Games, Via Ad Astra, Vol 1, 2015.



Smith, C. M. (2013), "Starship Humanity," Scientific American, Jan 2013, pg. 39-43.

Smitherman, David, Critical Technologies for the Development of Future Space Elevator Systems, IAC-05, paper and presentation, Fukuoka, Oct 2005.

Smitherman, D. (2006), "Space Elevators: An Advanced Earth-Space Infrastructure for the New Millennium", University Press of the Pacific, 2006.

Smitherman, David, Earth-Based Space Elevator Research and Technology Development, IAC-06, paper and presentation, Valencia, Oct 2006.

Squibb, Gael, Daryl Boden, and Wiley Larson, Cost Effective Space Mission Operations, McGraw Hill, 1996.

Swan, Peter, WHY - The Motivation for a Space Elevator, IAC-05, paper and presentation, Fukuoka, Oct 2005.

Swan, Peter, Yearly Study Reports from the International Space Elevator Consortium, Via Ad Astra, Vol 1, 2015.

Swan, Peter, Space Elevator Lexicon, IAC-16, paper and presentation, Guadalajara, Oct 2016

Swan, Peter, Cosmic Study Overview – Space Elevator Feasibility, IAC-12, paper and presentation, Naples, Oct 2011.

Swan, Peter, Quick-Look Operations Concept for a Space Elevator, IAC-11, paper and presentation, Cape Town, Oct 2011.

Swan, Peter, Creation of the International Space Elevator Consortium, 2009 IAC, paper and presentation, Daejeon, Oct 2009.

Swan, Peter, Space Elevator Development Sequence, IAC-16, paper and presentation, Guadalajara, Oct 2016

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

Swan, Peter, "ISEC President's Corner," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Swan, Peter, "ISEC Activision - The strength of our Volunteers," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Tsiolkovsky, K. E. (1959), "Speculations of Earth and Sky and On Vesta", Moscow, USSR Academy of Sciences, 1959 (in Russian – first published 1895).

Verge, Munir, International Cooperation and the Space Elevator, IAC-04, paper and presentation, Vancouver, Oct 2004.



TETHER MATERIALS AND DESIGN

MATERIAL PROPERTIES

- Artyukhov, V. / Liu, Y. / Yakobson, B., GETTING THE MOST OUT OF NANOTUBES: GUIDANCE FROM FRACTURE PHYSICS AND ATOMISTIC SIMULATIONS, CLIMB, Vol. II, 2013.
- Barber, A.H. et al. (2005), "Stochastic strength of nanotubes: An appraisal of available data", *Compos. Sci. Technol.*, Vol 65 No 15-16, pp. 2380–2384.
- Barnds, J., et al. (1998). TiPS: Results of a Tethered Satellite System. Tether technology Interchange Meeting, NASA/CP-1998-206900, NASA Marshall. January 1998.
- Belytschko, T. et al (2002), "Atomistic simulations of nanotube fracture", *Phys. Rev. B*, Vol 65 no 23, 235430.
- Brambilla, G. & Payne, D.N. (2009) "The ultimate strength of glass silica nanowires", *Nano Lett.*, Vol 9 No 2, pp. 831-835.
- Brambilla, G., AN UPDATED REVIEW OF NANOTECHNOLOGIES FOR THE SPACE ELEVATOR TETHER, CLIMB, Vol. I, 2011.
- Carroll, J.A. (1993). SEDS Deployer Design and Flight performance. AIAA Space Programs and Technologies Conference and Exhibit, Huntsville, AIAA-93-4764. September 1993.
- Carroll, J.A. and Oldson, J.C. (1995). SEDS characteristics and capabilities. In *Proceedings of the 4th International Conference on Tethers in Space*, pp. 1079-1090.
- Chobotov, V.A. and Mains, D.L. (1999). Tether Satellite System Collision Study, , *Acta Astronautica*, Vol 44, Nos. 7 – 12, pp 543 – 551, 1999.
- Cornwell, C.F. et al. (2011) "Very-high-strength (60-GPa) carbon nanotube fiber design based on molecular dynamics simulations", *J. Chem. Phys.*, Vol. 134, 204708.
- Cosmo, M.L., and Lorenzini, C.E., *Tethers In Space Handbook*, prepared for NASA Marshall Space Flight Center by Smithsonian Astrophysics Observatory, Cambridge, MA, December 1977.
- Cronin, S.B. et al (2005), "Resonant Raman spectroscopy of individual metallic and semiconducting single-wall carbon nanotubes under uniaxial strain", *Phys. Rev. B*, Vol 72 No 3, 035425.
- Demczyk, B.G. et al (2002), "Direct mechanical measurement of the tensile strength and elastic modulus of multiwalled carbon nanotubes", *Materials Science and Engineering*, vol A334, pp. 173–178.
- Dobrowolny, M. and Stone, N.H. (1994). A Technical Overview of TSS-1: The First Tethered Satellite System Mission, *Il Nuovo Cimento*, Vol. 17C, N.1, pp. 1-12.



Ebbesen, T.W. & Ajayan, P.M. (1992) "Large-scale synthesis of carbon nanotubes" *Nature*, Vol. 358, pp. 220-222.

Filleter, T. & Espinosa, H.D. (2012) "Multi-scale mechanical improvement produced in carbon nanotube fibers by irradiation cross-linking", *Carbon*, in press (2013)

Gao, P. et al (2010), "Self-Built Tensile Strain in Large Single-Walled Carbon Nanotubes", *ACS Nano*, Vol 4 No 2, pp. 992-998.

Gassend, B. (2004), "Non-Equatorial Uniform-Stress Space Elevator," 3rd Annual International Space Elevator Conference, Washington DC, 20 June 2004.

Gassend, B. (2004), "Exponential tethers for accelerated space elevator deployment". In Proc. of 3rd International Space Elevator Conference, June 2004.

Haase, Mark, *Advances in High Tensile Strength Materials for Space Elevator Applications*, *Journal of British Interplanetary Society*, Vol 69, No 06/07, Dec 2016.

Haase, Mark, "Status of Space Elevator Tether Material Research," Presentation at the National Space Society Conference, St. Louis, May 2017.

Haase, Mark, "Status of Space Elevator Tether Material Research," Presented during the Space Elevator Track at the 2017 National Space Society's International Space Development Conference, St. Louis, August 2017.

Hata, K. et al. (2004) "Water-Assisted Highly Efficient Synthesis of Impurity-Free Single-Walled Carbon Nanotubes" *Science*, Vol. 306 no 5700, pp. 1362-1364.

Huang, S. et al (2004) "Growth Mechanism of Oriented Long Single Walled Carbon Nanotubes Using "Fast-Heating" Chemical Vapor Deposition Process", *Nano Lett.*, Vol 4 No 6, pp. 1025-1028.

Hong, B. et al. (2005) "Quasi-Continuous Growth of Ultralong Carbon Nanotube Arrays", *J. Am. Chem. Soc.*, Vol. 127 No 44, pp. 15336-15337.

Iijima, S. (1991) "Helical microtubules of graphitic carbon" *Nature*, Vol. 354, pp. 56-58.

Iwanaga, H. & Kawai, C. (2005) "Tensile Strength of Silicon Nitride Whiskers Synthesized by Reacting Amorphous Silicon Nitride and Titanium Dioxide", *J. Am. Ceram. Soc.*, Vol 81 No 3, pp. 773-776.

Kong, J. et al. (1998) "Synthesis of individual single-walled carbon nanotubes on patterned silicon wafers" *Nature*, Vol. 395, pp. 878-881.

Koziol, K. et al (2007) "High-Performance Carbon Nanotube Fiber", *Science*, Vol 318 No 5858, pp. 1892-1895

Kruijff, M. and Heide, E. J. van der. (2009). Qualification and In-flight Demonstration of a European Tether Deployment System on YES2. In *Acta Astronautica*, vol. 64, p.882-905.



Kruijff M., Heide E.J. van der, Ockels W.J. (2009). Data Analysis of a Tethered SpaceMail Experiment. In Journal of Spacecraft and Rockets, Vol. 46, No. 6, pp. 1272-1287. (presented as AIAA-2008-7385).

Laubscher, Bryan, "Carbon Nanotube Industry Review," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Li, W.Z. et al. (1996) "Large-Scale Synthesis of Aligned Carbon Nanotubes" Science, Vol. 274 no 5293, pp. 1701-1703.

Li, Y-L et al (2004) "Direct Spinning of Carbon Nanotube Fibers from Chemical Vapor Deposition Synthesis", Science, Vol 304 no 5668, pp 276-278.

Lin, W. et al (2010) "Microwave Makes Carbon Nanotubes Less Defective", ACS Nano, Vol 4 No 3, pp. 1716-1722.

Liu, K. et al (2010) "Carbon nanotube yarns with high tensile strength made by a twisting and shrinking method", Nanotech., Vol 21 No 4, 045708.

Ma, W.J. et al (2007) "Directly Synthesized Strong, Highly Conducting, Transparent Single-Walled Carbon Nanotube Films", Nano Lett., Vol 7 No 8, pp. 2307-2311.

Ma, W.J. et al (2009) "Monitoring a Micromechanical Process in Macroscale Carbon Nanotube Films and Fibers", Adv. Mat., Vol 21 No 5, 603-608.

O'Brien, N.P. et al. (2012) "A theoretical quantification of the possible improvement in the mechanical properties of carbon nanotube bundles by carbon ion irradiation", Carbon, Vol. 53, pp. 346-356.

Pan, Z. W. et al. (1998) "Very long carbon nanotubes". Nature, Vol. 394 pp 631-632.

Peng, B. et al. (2008) "Measurements of near-ultimate strength for multiwalled carbon nanotubes and irradiation-induced crosslinking improvements", Nat. Nanotechol., Vol. 3 No 10, pp. 626-631.

Pugno, N.M. & Ruoff, R.S. (2004) "Quantized fracture mechanics", Philosophical Mag., Vol 84 No 27, pp. 2829-2845.

Pugno, N. et al (2009) "Size effects on the strength of nanotube bundles", Meas. Sci. Technol., Vol 20 No 8, 084028

Pugno, N. M. (2013), Towards the Artsutanov's dream of the space elevator: The ultimate design of a 35 GPa strong tether thanks to graphene. Acta Astronautica, Volume 82, Issue 2, p. 221-224.

Pugno, N., THE EFFECT OF COLLAPSED NANOTUBES ON NANOTUBE BUNDLE STRENGTH, CLIMB, Vol. II, 2013.

Pugno, N. / Abdalrahman T., MODELING THE SELF-HEALING OF BIOLOGICAL OR BIO-INSPIRED NANOMATERIALS, CLIMB, Vol. I, 2011.



Roundy, D., and Cohen, M.L. (2001), "Ideal strength of diamond, Si, and Ge", Phys. Rev. B, vol. 64, 212103.

Ruoff, R.S, Qian, D. & Liu, W.K. (2003) "Mechanical properties of carbon nanotubes: theoretical predictions and experimental measurements", Comptes Rendus Physique, Vol 4 No 9, pp. 993-1008

Sasaki, S. et al (1987). Results from a Series of Tethered Rocket Experiments. AIAA, USA.

Sasaki, S. and Oyama, K.I. (1994). Space Tether Experiments in Japan. 2nd International Workshop on the Application of Tethered Systems in Space, Kanagawa, Japan, ISAS, May 1994.

Sharma, Gaurav and Andrew Meulenberg. "Collosal Carbon Tubes as Tethers for a Space Elevator," Conf. Proceedings, International Space Elevator Consortium, Seattle, Washington, USA, 23 Aug. 2012

Stano, K.L. et al (2008) "Direct spinning of carbon nanotube fibres from liquid feedstock", Int. J. Mat. Forming, Vol 1 No 2, pp. 59-62

Suemori, K. (2012), "Film-shaped thermoelectric conversion elements can be produced in print" Available at: http://www.aist.go.jp/aist_j/aistinfo/aist_today/vol12_04/p17.html

Tang, G. et al (2010) "New Confinement Method for the Formation of Highly Aligned and Densely Packed Single-Walled Carbon Nanotube Monolayers", Small, Vol 6 No 14, pp. 1488-1491.

Telling, R. H., Pickard, C. J., Payne, M. C., and Field, J. E. (2000), "Theoretical Strength and Cleavage of Diamond", Phys. Rev. Lett., Vol. 84, pp. 5160-5163.

Termonia, Y. et al (1985), "Theoretical Study of the Influence of the Molecular Weight on the Maximum Tensile Strength of Polymer Fibers", Macromol., Vol. 18, pp. 2246-2252.

Tsukiyama, Y. (2010). "Tribological properties of high-alignment carbon nanotube films", The Machine Design and Tribology Division meeting in JSME 2010 (10), 49-50, 2010-04-18

Tyc, G. and Han, R.P.S. (1995). Attitude Dynamics Investigation of the OEDIPUS: A Tethered Rocket Payload. Journal of Spacecraft and Rockets, Vol. 32, No. 1, p. 133-141, February 1995.

Umehara, N. (2007), "Tribology of Fullerene and Carbon NanoTube as Advanced Materials Designed Nano-structures", Shinku, Vol. 50 No. 2, 2007. Pp. 76-81

Vigneron, F.R., Jablonski, A.M. et al. (1997). Comparison of Analytical Modeling of OEDIPUS Tethers with Data from Tether Laboratory. Journal of Guidance, Control and Dynamics, Vol. 20, No. 3, pp.471-478, May-June 1997.

Wang, X. et al. (2009) "Fabrication of Ultralong and Electrically Uniform Single-Walled Carbon Nanotubes on Clean Substrates" Nano Lett. Vol. 9 no 9, pp. 3137-3141.

Wang, Z., Ciselli, P. & Peijs, T. (2007), "The extraordinary reinforcing efficiency of single-walled carbon nanotubes in oriented poly(vinyl alcohol) tapes", IOP Nanotechnology, Vol 18 No 45, 455709.



Wei, X. et al (2010) "Tensile Tests on Individual Multi-Walled Boron Nitride Nanotubes", *Adv. Mater.*, Vol 22 No 43, pp. 4895-4899.

Wen, Q. et al (2010) "Growing 20 cm Long DWNTs/TWNTs at a Rapid Growth Rate of 80–90 $\mu\text{m/s}$ ", *Chem. Mater.*, Vol 22 No 4, pp. 1294-1296.

Wen, Q. et al (2010b) "100-mm Long, Semiconducting Triple-Walled Carbon Nanotubes", *Adv. Mater.*, Vol 22 No 16, pp. 1867-1871.

Williams, P., Blanksby, C., Trivailo, P., "Tethered Planetary Capture Maneuvers," *Journal of Spacecraft and Rockets*, Vol. 41, No. 4, pp.603-613, 2004.

Williams, P., "Dynamics and Control of Spinning Tethers for Rendezvous in Elliptic Orbits," *Journal of Vibration and Control*, Vol. 12, No. 7, pp.737-771, 2006.

Wong, S.S. et al. (1997) "Nanobeam Mechanics: Elasticity, Strength, and Toughness of Nanorods and Nanotubes", *Science*, Vol 277 No 5334, pp 1971-1975.

Xie, H. et al., "Growth of high-density parallel arrays of ultralong carbon nanotubes with catalysts pinned by silica nanospheres", *Carbon*, Vol. 52, pp. 535-540.

Yakobson, B.I., & Avouris, P. (2001), "Mechanical properties of carbon nanotubes" *Carbon Nanotubes*, Vol 80, pp. 287–327.

Yamada, T. et al (2008) "Revealing the Secret of Water-Assisted Carbon Nanotube Synthesis by Microscopic Observation of the Interaction of Water on the Catalysts", *Nano Lett.*, Vol 8 No 12, pp. 4288-4292.

Yao, Y. et al (2007) "Raman Spectral Measuring of the Growth Rate of Individual Single-Walled Carbon Nanotubes", *J. Phys. Chem. C*, Vol 111 No 24, pp. 8407-8409.

Yu, M.-F. et al (2000) "Strength and Breaking Mechanism of Multiwalled Carbon Nanotubes Under Tensile Load", *Science*, Vol 287 No 5453, pp. 637-640.

Yuan, Q. et al (2011) "Threshold Barrier of Carbon Nanotube Growth", *Phys. Rev. Lett.*, Vol. 107, 156101.

Yuan, Q. et al (2012) "Efficient Defect Healing in Catalytic Carbon Nanotube Growth", *Phys. Rev. Lett.*, Vol. 108, 245505.

Zedd, M.F. (1998). Experiments in Tether Dynamics Planned for ATEX's Flight. Tether technology Interchange Meeting, NASA/CP-1998-206900, NASA Marshall, January 1998.

Zhang, M. et al (2004) "Multifunctional Carbon Nanotube Yarns by Downsizing an Ancient Technology", *Science*, Vol 306 No 5700, pp 1358-1361.

Zhang, X. et al (2007) "Ultrastrong, Stiff, and Lightweight Carbon-Nanotube Fibers", *Adv. Mater.*, Vol 19, pp. 4198-4201.



Zhang, X. & Li, Q. (2010) "Enhancement of Friction between Carbon Nanotubes: An Efficient Strategy to Strengthen Fibers", ACS Nano, Vol 4 No 1, pp. 312-316.

Zhang, R. et al (2011) "Superstrong Ultralong Carbon Nanotubes for Mechanical Energy Storage", Adv. Mater., Vol 23 No 30, pp. 3387-3391.

Zhao, Q. et al (2002) "Ultimate strength of carbon nanotubes: A theoretical study", Phys. Rev. B, Vol 65 No 14, 144105.

Zheng, L.X. et al (2004) "Ultralong single-wall carbon nanotubes", Nature Mat., Vol 3 No 10, pp. 673-676.

Zheng, L. et al (2009) "Tuning Array Morphology for High-Strength Carbon-Nanotube Fibers", Small Vol 6 No 1, pp. 132-137.

TETHER DESIGN

Ambartsumian, S.A. / Belubekyan, M.V. / Ghazaryan K.B., OPTIMAL DESIGN OF THE SPACE ELEVATOR TETHER, CLIMB, Vol. I, 2011.

Barnds, J., et al. (1998). TiPS: Results of a Tethered Satellite System. Tether technology Interchange Meeting, NASA/CP-1998-206900, NASA Marshall. January 1998.

Carroll, J.A. (1993). SEDS Deployer Design and Flight performance. AIAA Space Programs and Technologies Conference and Exhibit, Huntsville, AIAA-93-4764. September 1993.

Carroll, J.A. and Oldson, J.C. (1995). SEDS characteristics and capabilities. In Proceedings of the 4th International Conference on Tethers in Space, pp. 1079-1090.

Chobotov, V.A. and Mains, D.L. (1999). Tether Satellite System Collision Study, Acta Astronautica, Vol 44, Nos. 7 – 12, pp 543 – 551, 1999.

Cosmo, M.L., and Lorenzini, C.E., Tethers in Space Handbook, prepared for NASA Marshall Space Flight Center by Smithsonian Astrophysics Observatory, Cambridge, MA, December 1977.

Dobrowolny, M. and Stone, N.H. (1994). A Technical Overview of TSS-1: The First Tethered Satellite System Mission, Il Nuovo Cimento, Vol. 17C, N.1, pp. 1-12.

Kruijff, M. and Heide, E. J. van der. (2009). Qualification and In-flight Demonstration of a European Tether Deployment System on YES2. In Acta Astronautica, vol. 64, p.882-905.

Kruijff M., Heide E.J. van der, Ockels W.J. (2009). Data Analysis of a Tethered SpaceMail Experiment. In Journal of Spacecraft and Rockets, Vol. 46, No. 6, pp. 1272-1287. (presented as AIAA-2008-7385).

Okada, Morihiro, Light and strong CNT fiber spun with CNT web, IAC presentation and paper, IAC-10 Session D4.



Sasaki, S. et al (1987). Results from a Series of Tethered Rocket Experiments. AIAA, USA.

Sasaki, S. and Oyama, K.I. (1994). Space Tether Experiments in Japan. 2nd International Workshop on the Application of Tethered Systems in Space, Kanagawa, Japan, ISAS, May 1994.

Tyc, G. and Han, R.P.S. (1995). Attitude Dynamics Investigation of the OEDIPUS: A Tethered Rocket Payload. Journal of Spacecraft and Rockets, Vol. 32, No. 1, p. 133-141, February 1995.

Vigeron, F.R., Jablonski, A.M. et al. (1997). Comparison of Analytical Modeling of OEDIPUS Tethers with Data from Tether Laboratory. Journal of Guidance, Control and Dynamics, Vol. 20, No. 3, pp.471-478, May-June 1997.

Williams, P., Blanksby, C., Trivailo, P., "Tethered Planetary Capture Maneuvers," Journal of Spacecraft and Rockets, Vol. 41, No. 4, pp.603-613, 2004.

Williams, P., "Dynamics and Control of Spinning Tethers for Rendezvous in Elliptic Orbits," Journal of Vibration and Control, Vol. 12, No. 7, pp.737-771, 2006.



ENVIRONMENTAL [DEBRIS, RADIATION, O_x, ELECTROMAGNETIC]

Barry, R.G., Chorley, R.J. (1998), Atmosphere, Weather & Climate, (Seventh Edition), Routledge, London, Section 6-3

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Hussey, John ed., Paper on Space Debris Mitigation Guidelines for Spacecraft, Draft – International Academy of Astronautics, 2003.

International Academy of Astronautics. (2000), “2001 Position Paper on Orbital Debris”, International Academy of Astronautics, 24.11.2000.

International Academy of Astronautics (2005), “2006 Position Paper on Space Debris Mitigation”, International Academy of Astronautics, 10.15.2005.

Ishige, Yuuki & Satorni Kawamoto. “Study on Electrodynamic Tether System for Space Debris Removal.” (IAF-02-A.7.04.) 53rd International Astronautical Congress, 2002.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Jorgensen, A., B. Gassend, R. H. W. Friedel, T. Cayton, S. E. Patamia, “Space Elevator Radiation Hazards and How to Mitigate Them,” 3rd Space Elevator Conference, Washington, DC, June 29, 2004.

Jorgensen, Anders, Active radiation shielding for the proposed space elevator using magnetic coils, IAC-06, paper and presentation, Valencia, Oct 2006.

Jorgensen, A. M., S. E. Patamia, and B. Gassend. "Passive radiation shielding considerations for the proposed space elevator." Acta Astronautica 60.3 (2006): 198-209.

Jorgensen, Anders, How do Intense Magnetic Storms Affect a Space Elevator?, IAC-13, paper and presentation, Beijing, Oct 2013.

Knapman, J. (2005), “Dynamically Supported Launcher,” Journal of the British Interplanetary Society, Vol. 58, No. 3/4, pp. 90-102

Knapman, J. (2009), “The Space Cable: Capability and Stability,” Journal of the British Interplanetary Society, Vol. 62, No.6, pp. 202-210

Knapman, J. (2010), “Diverse Configurations of the Space Cable,” 61st International Astronautical Congress, Prague, Czech Republic, 27 September 27- 1 October 2010

Knapman, J. (2011), “Space Elevator Stage I,” 62nd International Astronautical Congress, Cape Town, South Africa, 3-7 October 2011

Knapman, John, The Space Elevator in the Earth’s Atmosphere, Via Ad Astra, Vol 1, 2015.



Knapman, J. and Lofstrom, K. (2011), "Space Elevator Stage I: Through the Stratosphere," 2011 Space Elevator Conference, Redmond, WA, 12-14 August 2011

Knapman, J. (2012), "Benefits and Development of a High Stage One," 63rd International Astronautical Congress, Naples Italy, 1-5 October 2012.

Lang, D. D., "Approximating Aerodynamic Response of the Space Elevator to Lower Atmospheric Wind," Space Exploration 2005, SESI Conference Series, Vol. 1, 2005.

Lofstrom, K. (1985), "The Launch Loop," AIAA Paper 85-1368, July 1985.

Loftus, J. P. and Stansbery, E. G. (1993), "Protection of Space Assets by Collision Avoidance," 44th Congress of the International Astronautical Federation, Austria. IAA 6.4-93-752

NASA. (2010), "Debris density charts from NASA Orbital Debris Program Office", May 2010.

Pearson, Jerome, Eugene Levin, John Oldson, Joseph Carroll, "EDDE: ElectroDynamic Debris Eliminator for Active Debris Removal," International Conference on Debris Removal, Chantilly VA, 8-10 December 2009

Pearson, Jerome, Eugene Levin, John Oldson, and Joe Carroll, "EDDE: ElectroDynamic Debris Eliminator for Safe Space Operations," 13th Annual FAA/AIAA Commercial Space Transportation Conference, Arlington, VA, 10-11 February 2010.

Pearson, J. / Levin, E. / Carroll, J., ENHANCING SPACE ELEVATOR SAFETY BY ACTIVE DEBRIS REMOVAL, CLIMB, Vol. I, 2011.

Penny, Robert, Space Debris & Space Elevator, IAC-08, paper and presentation, Glasgow, Oct 2008.

Penny, Robert, Space Elevator Debris Mitigation Policy, 2009 IAC, paper and presentation, Daejeon, Oct 2009.

Penny Robert and Jones, Richard, "A Model for Evaluation of Satellite Population Management Alternatives," AFIT Master's Thesis, 1983.

Position Paper on Orbital Debris. International Academy of Astronautics, Paris 2000.

Penny, R., Swan, C. and Swan, P. (2011), "Space Elevator Survivability; Space Debris Mitigation". ISEC Position Paper #2010-1, International Space Elevator Consortium, Lulu, 2011.

Rugescu, Radu, Debris Hazards Mitigation and Retrieval for Space Elevators, IAC-06, paper and presentation, Valencia, Oct 2006

Swan, Peter, Robert Penny & Cathy Swan, "Space Elevator Survivability: Space Debris Mitigation," ISEC Position Paper #2010-1, International Space Elevator Consortium, Fall, 2010.

Swan, Peter and Cathy Swan, Space Elevator Systems Architecture, Lulu.com publishers, 2007.



Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

Swan, Peter, Robert "Skip" Penny, and Cathy Swan, Space Elevator Survivability – Space Debris Mitigation, Lulu.com, 2011.

Weeden, Billiards in Space, The Space Review, Feb 23, 2009. www.thespacereview.com/article/1314.



TETHER DYNAMICS AND ELECTRODYNAMICS

Ambartsumian, S.A. / Belubekyan, M.V. / Ghazaryan, K.B. / Ghazaryan, R. A, TRANSVERSE VIBRATION OF THE SPACE ELEVATOR TETHER WITH SPACEPORTS, CLIMB, Vol. II, 2013.

Aslanov, Vladimir, MOTION OF THE SPACE ELEVATOR AFTER THE RIBBON RUPTURE, IAC-12, paper and presentation, Naples, Oct 2011.

Beletsky, V.V., and E.M. Levin, "Dynamics of Space Tether Systems," Vol. 83 of Advances in the Astronautical Sciences, Univelt, San Diego, 1993 (English version).

Benaroya, Haym, Space Elevator Cable Dynamics, IAC-06, paper and presentation, Valencia, Oct 2006.

Cohen, S. S., Dynamics of a Space Elevator, Master of Engineering Thesis, McGill University, Montreal, Quebec, 2006.

Cohen, S. S. and Misra, A. K., "Elastic Oscillations of the Space Elevator Ribbon," Journal of Guidance Control and Dynamics, Vol. 30, No. 6, pp. 1711-1717, 2007.

Cohen, Stephen, Effects of Climber Transit on the Space Elevator Dynamics, IAC-07, paper and presentation, Naples, Oct 2007.

Cohen, S.S., and A.K. Misra, "The effect of climber transit on the space elevator dynamics," Acta Astronautica 64, 538 (2009).

Cohen, S. S. and Misra, A. K., "The Effect of Climber Transit on the Space Elevator Dynamics," Acta Astronautica, Vol. 64, pp. 538-553, 2009.

Cohen, Stephen, Static Deformation of Space Elevator Tether due to Climber, IAC-14, paper and presentation, Toronto, Oct 2014.

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Edwards, Bradley, The Space Elevator, NIAC Phase I Study Report, 2000.

Edwards, B. The Space Elevator, NIAC Phase II Final Report, 2003.

Edwards, B.C., "Design and Deployment of a Space Elevator," Acta Astronautica 47, 735 (2000).

Evensberger, Dag, Mechanics of the Space Elevator Including Deployment and Failure Modes, IAC-07, paper and presentation, Naples, Oct 2007.

Fujii, H.A, Watanabe, T., Kusagaya, T. and Sato, D., "Dynamics of Flexible Space Tether Equipped with a Crawler Mass," Journal of Guidance, Control, and Dynamics, Vol. 31, No.2, pp.436-440, March/April 2008.



Fujii, Hironori, Dynamics of Space elevator in Response to Disturbances, IAC-13, paper and presentation, Beijing, Oct 2013.

Hodges, D.H. and E.H. Dowell, "Nonlinear equations of motion for the elastic bending and torsion of twisted nonuniform rotor blades," NASA Technical Note D-7818 (1974).

Inoue, Fumihiro, Dynamic Behavior and Mechanism of Driving Roller for Climber Model in Space Elevator, IAC-16, paper and presentation, Guadalajara, Oct 2016

Ishige, Yuuki & Satorni Kawamoto. "Study on Electrodynamic Tether System for Space Debris Removal." (IAF-02-A.7.04.) 53rd International Astronautical Congress, 2002.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Ishikawa, Yoji, Impact of Ascending and Descending Climbers on Space Elevator Cable Dynamics, IAC-16, paper and presentation, Guadalajara, Oct 2016.

Jorgensen, Anders, Space Elevator Interaction with the Space Environment: Numerical Simulations, IAC-05, paper and presentation, Fukuoka, Oct 2005.

Jorgensen, Anders, Dynamics of the proposed space elevator under the influence of magnetospheric electric and magnetic fields, IAC-06, paper and presentation, Valencia, Oct 2006.

Jorgensen, Anders, The Interaction of a Conducting Space Elevator with Magnetic and Electric Fields in the Near-Earth Space Plasma, IAC-12, paper and presentation, Naples, Oct 2011.

Jorgensen, A.M. and S.E. Patamia, "How Do Intense Magnetic Storms Affect a Space Elevator?" 64th International Astronautical Conference, Beijing, IAC-13-D4.3, 8X18785 (2013).

Knapman, John, Stability of the Space Cable, IAC-06, paper and presentation, Valencia, Oct 2006

Knapman, John, "Benefits and Development of High Stage One for the Space Elevator," Naples IAC presentation and paper, IAC-12 D4.6.

Knapman, John, Improving Stability of the Space Cable, IAC-08, paper and presentation, Glasgow, Oct 2008.

Knapman, John, "A Multi-Stage Elevator," Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Keshmiri, Mehdi, Consideration of Tether Elasticity in the Deployment Phase of a Space Elevator System, IAC-13, paper and presentation, Beijing, Oct 2013.

Lang, D. D., "Space Elevator Dynamic Response to In-Transit Climbers," 1st International Conference on Science, Engineering, and Habitation in Space, Albuquerque, NM, Space Engineering and Science Inst., Paper 10152148, 2006.

Lang, David, Space Elevator Dynamic Response to In-Transit Climbers, Via Ad Astra, Vol 1, 2015.



- Lades, Martin, "Climber-Tether Interface for a Space Elevator, ISEC Conference, Seattle, 2013.
- Lenard, Roger, Mid-Earth Momentum Transfer Tether, IAC-08, paper and presentation, Glasgow, Oct 2008.
- Lorenzini, C. and Cosmo, M., "Wave Propagation in the Tether Elevator/Crawler System," Acta Astronautica, Vol. 21, No. 8, pp. 545-552, 1990.
- Mazzoleni, Andre, Deployment Dynamics of Space Elevator Ribbon, IAC-11, paper and presentation, Cape Town, Oct 2011.
- McInnes, Colin, Novel Payload Dynamics on Space Elevator Systems, IAC-05, paper and presentation, Fukuoka, Oct 2005.
- Modi, V. J., Bachman, S., and Misra, A. K., "Dynamics and Control of a Space Station Based Tethered Elevator System," Acta Astronautica, Vol. 29, No. 6, pp. 429-449, 1993.
- Ohkawa, R., Uchiyama, K., and Fujii, H. A., "The Effect of Disturbance on Space Elevator Dynamics with Flexibility," 61th International Astronautical Congress, Prague, IAC-10-D4. 4. 5, 27 Sep. -1 Oct. 2010.
- Patamia, Steven, Analytic Model of Dynamic Response of Proposed Space Elevator to Anchor Point Repositioning, IAC-05, paper and presentation, Fukuoka, Oct 2005.
- Patamia, Steven, Approaches to taming oscillations of terrestrial space elevators and reducing their exposure to van Allen radiation., IAC-14, paper and presentation, Toronto, Oct 2014.
- Pearson, J. "The Orbital Tower: A Spacecraft Launcher Using the Earth's Rotational Energy," Acta Astronautica 2, 785 (1975).
- Penny, Robert. Swan, Peter, & Cathy Swan, "Space Elevator Concept of Operations," ISEC Position Paper #2012-1, International Space Elevator Consortium, Fall, 2013.
- Perek, Lubos, Space Elevator: Stability, IAC-06, paper and presentation, Valencia, Oct 2006.
- Rugescu, Radu, Loads during Anchoring Dynamics from Earth Orbit, IAC-06, paper and presentation, Valencia, Oct 2006.
- Rugescu, Radu, Independent dynamics and stability of twin tethered objects, 2009 IAC, paper and presentation, Daejeon, Oct 2009.
- Rugescu, Radu, Soft Landing Dynamics Study with Extension to Elevator Anchoring, IAC-08, paper and presentation, Glasgow, Oct 2008.
- Rugescu, Radu, An Inverse Dynamics Method for Soft Landing and Anchoring Planning, IAC-07, paper and presentation, Naples, Oct 2007.
- Sidi, M., Spacecraft Dynamics and Control: A Practical Engineering Approach, Cambridge University Press, pp. 28-62, 1997.



Srinil, N., G. Rega and S. Chucheeepsakul, "Three-dimensional non-linear coupling and dynamic tension in the large amplitude free vibrations of arbitrarily sagged cables," *Journal of Sound and Vibration* 269, 823 (2004).

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, *Space Elevators: An Assessment of the Technological Feasibility and the Way Forward*, Virginia Edition Publishing Company, 2013.

Swan, Peter, Robert "Skip" Penny, and Cathy Swan, *Space Elevator Survivability – Space Debris Mitigation*, Lulu.com, 2011.

Takeichi, N., "Geostationary stationkeeping control of a space elevator during initial cable deployment", 61st International Astronautical Congress, Prague, Czech Republic, October 2010, paper No. IAC-10-D.4.4.7.

Takeichi, N., "Geostationary station keeping control of a space elevator during initial cable deployment", *Acta Astronautica*, Vol. 70, pp. 85-94, 2012.

Troger, Hans, *On the Stability of the Track of the Space Elevator*, IAC-06, paper and presentation, Valencia, Oct 2006

Uchiyama, K., Iijima, K., and Fujii, H. A., "Construction of Space Elevator Model Using Absolute Nodal Coordinate," *Transactions on Advanced Research IPSI Bgd Internet Research Society*, ISSN 1820-4511, Vol. 9, No. 2, pp.8-12, July 2013.

West, Icole, *Small Scale SE Ribbon Dynamics: Finite Element Analyses of Regional Phenomena*, IAC-04, paper and presentation, Vancouver, Oct 2004.

Williams, P., "Dynamic Multibody Modeling for Tethered Space Elevators," *Acta Astronautica*, Vol. 65, No. 3-4, pp.399-422, Aug-Sept. 2009.

Williams, P. and Ockels, W., "Climber motion optimization for the tethered space elevator, *Acta Astronautica*, doi:10.1016/j.actaastro.2009.11.003, 2009.

Williams, Paul, *Dynamic Multibody Modeling for Tethered Space Elevators*, IAC-07, paper and presentation, Naples, Oct 2007.

Wright, Dennis, "Space Elevator Research and ISEC Studies," Presentation at the National Space Society Conference, St. Louis, May 2017.

Woo, P. and Misra, A.K. "Dynamics of a partial space elevator with multiple climbers," *Acta Astronautica*, doi:10.1016/j.actaastro.2010.04.023, 2010.

Woo, Pamela, *Dynamics of a Partial Elevator with Multiple Climbers*, IAC-08, paper and presentation, Glasgow, Oct 2008.



Yamagiwa, Yoshiki, Study about the Performance for Simultaneous Deployment of the Cables from GEO Station under the Space Elevator Construction, IAC-16, paper and presentation, Guadalajara, Oct 2016

Yasaka, Tetsuo, Dynamics and Stability of Space Elevator during Initial Deployment, 2009 IAC, paper and presentation, Daejeon, Oct 2009.

Yokochi, Masanori, Experimental Study on Effect of Climbing Rider on Lateral Deviation of Space Elevator, IAC-14, paper and presentation, Toronto, Oct 2014.

ELECTRODYNAMICS

Allison, J. et al., "Recent Developments in Geant4," Nuclear Instruments and Methods in Physics Research A, 186 (2016).

Fujii, H.A. et al. (2009). Sounding rocket experiment of bare electrodynamic tether system. Acta Astronautica, vol. 64, p.313-324.

Gilchrist, B. et. al. (1998). Enhanced electrodynamic tether currents due to electron emission from a neutral gas discharge: Results from the TSS-1R mission. Geophysical Research Letters, Vol. 25, No. 4, pp. 437-440, February 15, 1998.

Ginet, G.P. et al., "AE9, AP9 and SPM: New Models for Specifying the Trapped Energetic Particle and Space Plasma Environment," Space Science Reviews 179, 579 (2013).

Jorgensen, A.M., S.E. Patamia and B. Gassend, "Passive radiation shielding considerations for proposed space elevator," Acta Astronautica 60, 198 (2007).

Jorgensen, Anders, How do Realistic Magnetospheric Fields Affect Space Elevators?, IAC-16, paper and presentation, Guadalajara, Oct 2016

Tsyganenko, N.A., "A Magnetospheric Magnetic Field Model with a Warped Tail Current Sheet," Planetary and Space Science 37, 5 (1989).

Wright, D. "Electric Currents on the Space Elevator," International Space Elevator Conference, Seattle, August 2013.



IN THE ATMOSPHERE [EARTH PORT, MULTI-STAGE, HQ/POC]

EARTH PORT

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Edwards, Bradley, The Space Elevator, NIAC Phase I Study Report, 2000.

Edwards, B. The Space Elevator, NIAC Phase II Final Report, 2003.

Fitzgerald, Michael, “Space Elevator Sequences and Initial Operational Capability,” Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Hall, Vern, R. Penny, P. Glaskowsky, S. Schaeffer, Design Considerations for Space Elevator Earth Port, ISEC Study Report, www.lulu.com, 2016

Hall, Vernon, “Earth Port Access City: The Case for Hawaii,” presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Penny, Robert, Concept for a Space Elevator Earth Port, IAC-16, paper and presentation, Guadalajara, Oct 2016

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

Swan, Peter, Space Elevator Design Aspects for the Environment, IAC-12, paper and presentation, Naples, Oct 2011.

MULTI-STAGE

Knapman, John, Space Elevator in the Atmosphere, IAC-14, paper and presentation, Toronto, Oct 2014.

Knapman, John, “Benefits and Development of High Stage One for the Space Elevator,” Naples IAC presentation and paper, IAC-12 D4.6.

Knapman, John, “A Multi-Stage Elevator,” Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Knapman, John, Space Elevator Stage I, IAC-11, paper and presentation, Cape Town, Oct 2011.

Knapman, John, Benefits and Development of a High Stage One for the Space Elevator, IAC-12, paper and presentation, Naples, Oct 2011.



Knapman, John, The Space Elevator in the Earth's Atmosphere, Via Ad Astra, Vol 1, 2015.

Knapman, John, The Space Elevator Tower, IAC-16, paper and presentation, Guadalajara, Oct 2016

Knapman, John, "Stability of the Multi-stage Space Elevator," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

HQ/POC

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Fitzgerald, M, R. Penny, P. Swan, C. Swan, Space Elevator Architectures and Roadmaps, ISEC Study Report, lulu.com, 2015

Fitzgerald, Michael, "Space Elevator Sequences and Initial Operational Capability," Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Hall, Vern, R. Penny, P. Glaskowsky, S. Schaeffer, Design Considerations for Space Elevator Earth Port, ISEC Study Report, www.lulu.com, 2016

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Penny, Robert. Swan, Peter, & Cathy Swan, "Space Elevator Concept of Operations," ISEC Position Paper #2012-1, International Space Elevator Consortium, Fall, 2013.

Penny, Robert, Design Considerations for Geo Node, Apex Anchor and Communications Architecture ISEC Study underway 2017.

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.



TETHER CLIMBERS DESIGN AND POWER

Angel, R. (2006), "Feasibility of Cooling the Earth with a Cloud of Small Spacecraft near L1," Proceedings of the National Academy of Sciences, v 103, n46, 2006 November 14, 2006. Pp. 17184–17189. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1859907>

Bartoszek, Larry, "Getting the Mass of the First Construction Climber Under 900 Kg," ISEC Conference, Seattle, 2013.

Bou, Elisenda, Laser and the Space Elevator: an Approachment, IAC-07, paper and presentation, Naples, Oct 2007.

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Edwards, Bradley, Results from the First Annual Space Elevator Climber Competition, IAC-05, paper and presentation, Fukuoka, Oct 2005.

Hein, Andreas, analysis of possible changes in spacecraft design due to the usage of a space elevator for transportation, 2009 IAC, paper and presentation, Daejeon,

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Hinton, G., HEAT DISSIPATION ISSUES IN SPACE ELEVATOR CLIMBERS, CLIMB, Vol. I, 2011.

Keshmiri, Mehdi, On the deployment of a subsatellite in a space elevator system, IAC-12, paper and presentation, Naples, Oct 2011.

Knapman, John, Diverse Configurations of the Space Cable, IAC presentation and paper, IAC-10 Session D4.

Knapman, John, "Tether Climber at Constant Power," ISEC Conference, Seattle, 2013.

Knapman, John, "Benefits and Development of High Stage One for the Space Elevator," Naples IAC presentation and paper, IAC-12 D4.6.

Lades, Martin, "Climber-Tether Interface for a Space Elevator, ISEC Conference, Seattle, 2013.

Lades, Martin, Wireless Power Transfer to a Moving Vehicle: Explorations with the Kansas City team for the NASA/Spaceward power beaming challenge, IAC presentation and paper, IAC-10 Session D4.

Laine, Michael, Chapter 3: Spacecraft at: <http://www.mill-creek-systems.com/HighLift/chapter3.html>

Lofstrom, Keith, "Acoustic Powered Tether Climbers," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.



Mankins, J. (2011), "Space Solar Power, The First International Assessment of Space Solar Power: Opportunities, Issues and Potential Pathways Forward", IAA, October 2011.

Ohno, Shuichi, Japanese Space Elevator Competitions and Challenges, Journal of British Interplanetary Society, Vol 69, No 06/07, Dec 2016.

Ohno, Shuichi, "Space Mechatronics - A Global Challenge of SE Communities," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.

Penny, Robert "Skip", "Tether Climber Operational Phases," ISEC Conference, Seattle, 2013.

Penny, Robert, Space Elevator Climber Operations, IAC-14, paper and presentation, Toronto, Oct 2014.

Penny, R., P. Swan, C. Swan, J. Knapman, P. Glaskowsky, Design Considerations for Space Elevator Tether Climbers, ISEC Study Report, www.lulu.com, 2014

Purang, Deepak (n.d.), "Space sunshade may one day reduce global warming." Editorial. http://www.streetdirectory.com/travel_guide/14921/gadgets/space_sunshade_may_one_day_reduce_global_warming.html

Semon, Ted, "Hybrid Tether Climber," ISEC Conference, Seattle, 2013.

Shelef, B., "A Solar-Based Space Elevator Architecture," Spaceward Foundation, 2008. <http://www.spaceward.org/elevator-library#SW>

Shelef, B., "Segment Based Ribbon Architecture", In Proc. of 3rd International Space Elevator Conference, June 2004.

Shelef, B., "The Space Elevator Feasibility Condition", Climb Journal, Volume 1, Number 1, p. 87. And in - Spaceward Foundation, 2008. Available at: <http://www.spaceward.org/elevator-library#SW>

Shelef, B., "Space Elevator Power System Analysis and Optimization, Spaceward Foundation, 2008. Available at: <http://www.spaceward.org/elevator-library#SW>

Smith, Frederick G., Accetta, Joseph S., and Shumaker, David L., The Infrared and Electro-Optical Systems Handbook: Atmospheric Propagation of Radiation, ANN ARBOR MI, 1993.

Suemori, K., "Film-shaped thermoelectric conversion elements can be produced in print" Available at: http://www.aist.go.jp/aist_j/aistinfo/aist_today/vol12_04/p17.html

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

Swan, Peter, What if? Space Solar Power was Enabled by Space Elevators, IAC-08, paper and presentation, Glasgow, Oct 2008.



Swan, Peter, Space Elevator Tether Climbers – Normal Spacecraft?, IAC-14, paper and presentation, Toronto, Oct 2014.

Swan, P., NASA's Space Elevator Games: A History, Journal of British Interplanetary Society, Vol 69, No 06/07, Dec 2016.

TSM , “Technological Strategy Zmap 2010 – Energy”, Ministry of Economy, Trade and Industry.

Available at:

http://www.meti.go.jp/policy/economy/gijutsu_kakushin/kenkyu_kaihatu/str2010download.html

Tsuchida A. et al, “New Space Transportation System-Space Train (Elevator): World trends and Japanese Space Train Concept”, Technical report of IEICE. SANE 109(101), 93-98, 2009-06-18.

Yoshino, Kazuyoshi, Experimental Study on Speed Control of Rider on Twisted Tape Tether Using Image Processing, IAC-13, paper and presentation, Beijing, Oct 2013.



NODES [GEO, APEX ANCHOR, GATES & CENTERS]

GEO NODE

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Fitzgerald, Michael, Vern Hall, Peter Swan, Cathy Swan, “Design Considerations for Space Elevator Apex Anchor and GEO Node,” ISEC Study Report, 2017.

Fitzgerald, Michael, “Space Elevator Sequences and Initial Operational Capability,” Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

APEX ANCHOR

Edwards, Bradley and Eric Westling, Space Elevator – A Revolutionary Earth-to-Space Transportation System, BC Edwards publishing, 2002.

Fitzgerald, Michael, “Space Elevator Sequences and Initial Operational Capability,” Paper given at 2016 ISEC Space Elevator Conference, Seattle, 19-21 August 2016.

Fitzgerald, M, R. Penny, P. Swan, C. Swan, Space Elevator Architectures and Roadmaps, ISEC Study Report, lulu.com, 2015.

Fitzgerald, Michael, Vern Hall, Peter Swan, Cathy Swan, “Design Considerations for Space Elevator Apex Anchor and GEO Node,” ISEC Study Report, 2017.

Ishikawa, Yoji, The Space Elevator Construction Concept, Obayashi Corporation, 2013, IAC-13-D4.3.6.

Swan, P., Raitt, Swan, Penny, Knapman. International Academy of Astronautics Study Report, Space Elevators: An Assessment of the Technological Feasibility and the Way Forward, Virginia Edition Publishing Company, 2013.

GATES & CENTERS



LUNAR AND MARS ELEVATORS

- Bezrodny, G., N. Greenfeld, A. Tatievsky, R. Qedar, O. Reuven, A. Kogan, "Lunar Space Elevator, "Jacob's Ladder," Aerospace Faculty Technion, Haifa, Israel, 2009.
- Eubanks, T.M., A space elevator for the far side of the moon, Annual Meeting of the Lunar Exploration Analysis Group, LPI Contributions (2013), p. 7047
- Eubanks, T.M., C.Maccone,C.F.Radley Lunar farside radio astronomy base facilitated by lunar elevator Annual Meeting of the Lunar Exploration Analysis Group, Vol.1863 of LPI Contributions (2015), p. 2014
- Ganapathy, Rohan, Conceptual Colonization of Space Using Space-Elevators from Mars' natural Satellite "Phobos", IAC-13, paper and presentation, Beijing, Oct 2013.
- Guerman, Anna, DYNAMICS OF A PLANET-TETHERED SPACECRAFT, IAC-11, paper and presentation, Cape Town, Oct 2011.
- Guerman, Anna, Dynamics of moon elevator, IAC-14, paper and presentation, Toronto, Oct 2014.
- Lades, Martin and Lake Matthew Team, "Omaha Trail to Lake Matthew," presented at 2017 ISEC Conference, Seattle, 25-27 Aug 2017.
- Laine, Michael, "Leveraging the lunar Space Elevator for L-1 Development," Presentation at the National Space Society Conference, St. Louis, May 2017.
- Mistry, Ashish, ELEVATOR TRANSPORTATION BETWEEN MARS & IT'S MOONS, IAC-08, paper and presentation, Glasgow, Oct 2008.
- Moravec, H., A non-synchronous orbital skyhook J. Astronautical Sci., 25 (1977), pp. 307-322
- Parkinson, Robert, Partial Beanstalks for Mars Exploration, IAC-04, paper and presentation, Vancouver, Oct 2004.
- Pearson, Jerome, The Lunar Space Elevator, IAC-04, paper and presentation, Vancouver, Oct 2004
- Pearson, J., E. Levin, J. Oldson, and H. Wykes, Lunar Space Elevators for CISLUNAR Space Development, NIAC Phase I Final Technical Report, 2 May 2005.
- Pearson, J., Eugene Levin, John Oldson, and Harry Wykes, "The Lunar Space Elevator," Space Technology, Vol. 25, No. 3-4, pp. 203-209, 2005.
- Pearson, J., Eugene Levin, John Oldson, and Harry Wykes, "Lunar Space Elevators for Cis-Lunar Transportation," International Conference, Moon Base: A Challenge for Humanity, Venice Workshop, Venice, Italy, 26-27 May 2005.
- Pearson, j. "Space Elevators for Earth and Moon," presented at the International Space Development Conference, ISDC 2007, Dallas, TX, 24-28 May 2007.



Pearson, Jerome, LUNAR ANCHORED SATELLITE TEST, CLIMB, Vol. II, 2013.

Pearson, Jerome, Anchored Lunar Satellites for Cislunar Transportation and Communication, Via Ad Astra, Vol 1, 2015.

Radley, Charles, Lunar Skylift: Cable Oscillations and their Treatment, IAC-14, paper and presentation, Toronto, Oct 2014.

Radley, Charles, Lunar Elevator - Payload transfer on Earthbound flow, IAC-14, paper and presentation, Toronto, Oct 2014.

Swan, Peter, First Space Elevator: on the Moon, Mars or the Earth?, IAC presentation and paper, IAC-10 Session D4.

Swan, Peter, Opening up earth-moon enterprise with a space elevator, New Space, 3 (2015), pp. 213-217



MISCELLANEOUS

Ambrose, S. (2000), "Nothing like it in the World". Simon & Schuster, New York, 2000.

Clarke, A. C. (2003), "Discussion by GEO satellite relay from Sri Lanka, 2nd Annual International Space Elevator Conference, 2003, Sante Fe, NM.

Dwyer, J. R. and Smith, D. M. (2012), "Deadly Rays from Clouds," Scientific American, 307, August 2012. pp. 54-59.

EUSPEC (2011), "Evaluation", Available at: <http://euspec.warr.de/handbook>

Highlift at: <http://www.mill-creek-systems.com/HighLift/chapter3.html>

Gale, S. F. (2011), "Biggest isn't always better," PM Network, March 2011. Available at: http://www.pegasus-global.com/newsletters/201104/Patricia_D_Galloway_Columbia_River_Crossing_Leadership_On_Megaprojects.pdf

Gelb, M. J. (2012), http://thinkexist.com/quotes/michael_j_gelb, June 2012.

Johnson, L. et al (2003). Propulsive Small Expendable Deployer System (ProSEDS) Experiment Mission Overview and Status. In 39th AIAA ASME SAE ASEE Joint Propulsion Conference.

Levin, E.M. (2007). Dynamic Analysis of Space Tether Missions. Advances in the Astronautical Sciences, vol. 126.

McCoy, J.E. et al. (1995). Plasma Motor-Generator (PMG) Flight Experiment Results. In the fourth Conference On Tethers in Space, pp. 57-82.

Meulenberg, A. and Karthik Balaji P.S., "The LEO Archipelago: A System of Earth-Rings for Communications, Mass-Transport to Space, Solar Power, and Control of Global Warming," Acta Astronautica 68 (2011), iss. 11-12 Jun 2011 pp. 1931-1946, doi: 10.1016/j.actaastro.2010.12.002 arXiv:1009.4043v1.

Meulenberg, A. and Wan, T., C., "LEO-Ring-Based Communications Network," Proceedings of Space, Propulsion & Energy Sciences International Forum (SPESIF-11, March 15-17, 2011), Physics Procedia, Volume 20, 2011, Pages 232-241, edited by Glen A. Robertson.

Meulenberg, A. and Poston, T., "Sling-on-a-Ring: Structural elements for a Space Elevator to LEO," Proc. of SPESIF-11, March 15-17, 2011, Physics Procedia Volume 20, 2011, pp 222-231, Space, Propulsion & Energy Sciences International Forum edited by Glen A. Robertson.

Gaurav Sharma and Andrew Meulenberg, "Colossal Carbon Tubes as Tethers for a Space Elevator," Conf. Proceedings, International Space Elevator Consortium, Seattle, Washington, USA, 23 Aug. 2012



Meulenberg, A, "Future Perspectives in Space Solar Power Generation, Transmission, and Storage," Keynote speaker, International Multidisciplinary Conf. on Solar Energy (IMDCSE-2012), Chennai, India, 1-3 Feb. 2012

Meulenberg, A., "Sling on a ring: mass- and man-transport to space," presented at the 62nd International Astronautical Congress 2011, Cape Town S.A. Oct. 3-7

Meulenberg, A., T. C. Wan, "Fiber-optic, LEO-based, communications ring," presented at the 62nd International Astronautical Congress 2011, Cape Town S.A. Oct. 3-7

Meulenberg, A., T. Poston, "Compressive members for a space elevator to LEO," presented at the 62nd Int. Astronautical Congress 2011, Cape Town S.A. Oct. 3-7

R. Suresh and A. Meulenberg, "A LEO-based solar-shade system to mitigate global warming," Proc. of Int. Astronautics Congress, IAC-2009, Daejeon, Korea, Oct. 2009, and <http://arxiv.org/abs/1504.05148>

Meulenberg, A., R. Suresh, S. Ramanathan, and Karthik Balaji P.S., "LEO-Based Space-Elevator Development using Available Materials and Technologies," IAC-2009 Daejeon, Korea, Oct. 2009

Meulenberg, A., R. Suresh, S. Ramanathan, and Karthik Balaji P. S., "Solar Power from LEO," Proc. of International Conf. on Energy and Environment, 19-21 Mar. 2009, Chandigarh, India

Meulenberg, A., R. Suresh, and S. Ramanathan, "LEO-Based Optical/Microwave Terrestrial Communications" presented International Astronautics Congress, IAC-2008, Glasgow, Scotland, arXiv:1009.5506v1

Meulenberg, A., Karthik Balaji P. S, R. Suresh and S. Ramanathan, "Sling-On-A-Ring: A Realizable Space Elevator to LEO?" presented at IAC-2008, Glasgow, Scotland, <http://www.iafastro.net/iac/archive/browse/IAC-08/D4/1/366/> and as Appendix in http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V1N-51YB077-1&_user=4187955&_coverDate=01%2F15%2F2011&_rdoc=1&_fmt=high&_orig=gateway&_origin=gateway&_sort=d&_docanchor=&_view=c&_acct=C000012438&_version=1&_urlVersion=0&_userid=4187955&_md5=11bd165886015eb911dd7758598d47dc&_searchtype=a

Pearson, J. "The Real History of the Space Elevator," paper IAC-06-D4.3.01, 57th International Astronautical Congress, Valencia, Spain, 2-6 October 2006.

Shinobu Doi (2011), "JEM Extended Utilization for Exposed Experiments using JEM Airlock and Robotics", 15th Annual ISU International Symposium, Strasbourg, France, Feb 16, 2011

Teal Group (2012), "World Space Systems Briefing". Teal Group, 2012.

The British Interplanetary Society. (2012), "Is space commercialization a myth?," Spaceflight Magazine, v54, n6, June 2012, p. 206

Tsuchida, Akira, "IAA Study – "The Road to the Space Elevator Era," presented at 2017 ISEC



Conference, Seattle, 25-27 Aug 2017.

Tsyganenko, N., Fortran programs Geopack-2008,
<http://geo.phys.spbu.ru/~tsyganenko/modeling.html>

Volland, H.J. Geophys. Res. 78, 171 (1973); & D.J. Stern, Geophys. Res. 80, 595 (1975).

VSO (Visual Satellite Observer's Homepage). <http://www.satobs.org/noss.html>, last accessed
November 2010.

Weeden, B. (2009), Billiards in Space. The Space Review, Feb 23, 2009. Available at:
www.thespacereview.com/article/1314/1

Whitesides, G. (2004), "Panel Discussion," The Space Elevator 3rd Annual International Space Elevator
Conference, 30 June 2004, Washington, D.C.