

## Directed Energy and Related References Through May 2020

We have more than 450 papers published with >50 being on DE. A larger list of references is on our website and on

**ResearchGate:** [https://www.researchgate.net/profile/Philip\\_Lubin](https://www.researchgate.net/profile/Philip_Lubin)

**Website:** [www.deepspace.ucsb.edu/projects/starlight](http://www.deepspace.ucsb.edu/projects/starlight), [web.deepspace.ucsb.edu/projects/starlight](http://web.deepspace.ucsb.edu/projects/starlight)

<http://www.deepspace.ucsb.edu/projects/directed-energy-planetary-defense>

<http://www.deepspace.ucsb.edu/directed-energy-interstellar-precursors>

<http://www.deepspace.ucsb.edu/projects/implications-of-directed-energy-for-seti>

### Directed Energy for Relativistic Flight and Interstellar Mission Related Papers:

#### **Books:**

**World Scientific** – Lubin, P. – “*The Path*” – 650 page book on the physics and engineering of large scale directed energy systems for space application, its overall ramifications and its transformative uses in propulsion - In press 2020

**NASA-World Books (Children’s book)** – P. Lubin – “*Out of this world Meets NASA Inventor Philip Lubin and his Teams Laser Sailing Starships*” - 2017

L 795.L37 2017 Bookstacks

[https://www.nasa.gov/centers/hq/library/find/bibliographies/childrens\\_space\\_resources](https://www.nasa.gov/centers/hq/library/find/bibliographies/childrens_space_resources)

#### **Journal Articles:**

**Acta Astronautica** – Sheerin, T, Petro, E, Winters, K., Lozano, P., Lubin, P. “*Fast Solar System Transportation with Electric Propulsion Powered by Directed Energy*” in press 2020

#### **ESA – Acta Futura**

Lubin, P. and Hettel, W. “*The Path to Interstellar Flight*” *Acta Futura* 12, 9-45, April 2020

[www.esa.int/gsp/ACT/acta\\_futura/issue12](http://www.esa.int/gsp/ACT/acta_futura/issue12)

#### **Advances in Space Research**

She, S., Hettel, W. and Lubin, P. “*Directed Energy Interception of Satellites*”, *Advances in Space Research* 63, 3795, 2019

#### **Astrophysical Journal (Ap J):**

Lubin, P., Messerschmidt, D. and Morrison, I. “*Interstellar Mission Communications – Low Background Regime*”, submitted Jan 2018, <http://arxiv.org/abs/1801.07778>

Kulkarni, N., Lubin, P., Zhang, Q. “*Relativistic Spacecraft Propelled by Directed Energy*”, Vol 55, 4, March 2018, <http://arxiv.org/abs/1710.10732>

#### **Journal of the British Interplanetary Society (JBIS):**

Lubin, P. “*The Roadmap to Interstellar Flight*”, *Journal of the British Interplanetary Society* – JBIS, vol. 69, pp.40-72, 20 (2016). <http://arxiv.org/abs/1604.01356>

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Lubin, P., Hughes, G.B., Bible, J. and Johansson, I. “Directed Energy for Planetary Defense and Exploration: Applications to Relativistic Propulsion and Interstellar Communications,” *Journal of the British Interplanetary Society* – JBIS, vol. 68, no. 5/6, pp. 172-182 (May/June 2015).

#### ***Astronomical Journal (AJ)***

Zhang, Q., P. M. Lubin and, Hughes, G.B.. “Orbital Deflection of Comets by Directed Energy,” *Astronomical Journal* , Vol. 157, No. 201 (April 2019). <http://arxiv.org/abs/1904.12850>

#### ***Publications of the Astronomical Society of the Pacific (PASP):***

Zhang, Q., Walsh, K.J., Melis, C., Hughes, G.B. and Lubin, P.M. “Orbital Simulations on Deflecting Near Earth Objects by Directed Energy,” *Publications of the Astronomical Society of the Pacific*, Vol. 128, No. 962, pp. 045001 (April 2016).

#### ***Reviews in Human Space Exploration (REACH)***

Lubin, P. “The Search for Directed Intelligence”, *Reviews in Human Space Exploration (REACH)*, vol. 1, pp. 20-45 (March 2016). <http://arxiv.org/abs/1604.02108>

#### ***Journal of the British Interplanetary Society (JBIS):***

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#### ***Advances in Space Research (ASR):***

Lubin, P., Hughes, G.B., Eskenazi, M., Kosmo, K., Johansson, I., Griswold, J., Pryor, M., O’Neill, H., Meinhold, P., Suen, J., Riley, J., Zhang, Q., Walsh, K.J., Melis, C., Kangas, M., Motta, C. and Brashears, T. “Directed Energy Missions for Planetary Defense,” *Advances in Space Research*, 58(6), pp. 1093–1116 (2016).

#### ***Journal of the British Interplanetary Society (JBIS):***

Lubin, P., Hughes, G.B., Bible, J. and Johansson, I. “Directed Energy for Planetary Defense and Exploration: Applications to Relativistic Propulsion and Interstellar Communications,” *Journal of the British Interplanetary Society*, vol. 68, no. 5/6, pp. 172-182 (May/June 2015).

#### ***Handbook of Cosmic Hazards and Planetary Defense:***

Lubin, P. and Hughes, G.B. “Directed Energy for Planetary Defense.” Chapter in: Allahdadi, Firooz, and Pelton, Joseph N. (Eds.), *Handbook of Cosmic Hazards and Planetary Defense*, Springer Reference, 1127 p., ISBN 978-3-319-03951-0 (2015).

#### ***Optical Engineering (OE):***

Lubin, P., Hughes, G.B., Bible, J., Bublitz, J., Arriola, J., Motta, C., Suen, J., Johansson, I., Riley, J., Sarvian, N., Clayton-Warwick, D., Wu, J., Milich, A., Oleson, M., Pryor, M., Krogen, P., Kangas, M., and O’Neill, H. “Toward directed energy planetary defense,” *Optical Engineering*, Vol. 53, No. 2, pp 025103-1 to 025103-18 (Feb. 2014), doi: 10.1117/1.OE.53.2.025103.

### **Conference Proceedings**

#### **International Electric Propulsion Conference IEPC-2019 – Vienna September 2019**

Brophy et al “Directed-Energy Propulsion Architecture for Deep-Space Missions with Characteristic Velocities of Order 100 km/s”

#### **SPIE Proceedings – Nanophotonics - August 2019**

Cohen et al, “Standoff Molecular Composition of Asteroids and Other Targets – Current Status”

Ehlikman et al “Optical Systems for Large Aperture Laser Phased Array Including Diffractive Optics”

Srinivasan et al “Directed Energy Phased Array for Space Exploration: Phase Noise Tests Using Polarization Diversity Topology”

Srinivasan et al “Directed Energy Phased Array for Space Exploration: 1064 nm Amplifier Design and Characterization”

### **SPIE Proceedings – Astronomical Optics – August 2018**

Sucich, A., Snyder, T., Bittencourt, R., Cirilo, E.H., Madajian, J., Wang, Y., Miller, B., Srinivasan, P., Lubin, P.M., and Hughes, G.B., "Experimental design for remote laser evaporative molecular absorption spectroscopy sensor system concept," *CubeSats and NanoSats for Remote Sensing II*, edited by Thomas S. Pagano and Charles D. Norton, Proc. of SPIE Vol. 10769, pp. 1076924 (2018).

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Zhang, Q., Lubin, P., and Hughes, G.B., “Long-period comet impact risk mitigation with Earth-based laser arrays,” *Astronomical Optics: Design, Manufacture and Test of Space and Ground Systems*, edited by Tony B. Hull, DaeWook Kim, Pascal Hallibert, Gary B. Hughes, Ronald G. Pirich, Proc. of SPIE Vol. 10401, pp. 1040104 (Aug, 2017).

Sucich, A., Snyder, T., Hughes, G.B., Srinivasan, P., Lubin, P., Zhang, Q., Cohen, A., Madajian, J., Brashears, T., and Rupert, N. “Near field optical model for directed energy propelled spacecraft,” *Astronomical Optics: Design, Manufacture and Test of Space and Ground Systems*, edited by Tony B. Hull, DaeWook Kim, Pascal Hallibert, Gary B. Hughes, Ronald G. Pirich, Proc. of SPIE Vol. 10401, pp. 1040101 (Aug, 2017).

### **IEEE Aerospace Conference – March 2017**

Hughes, G.B., Lubin, P., Cohen, A.N., Madajian, J., Kulkarni, N., Zhang, Q., Griswold, J., and Brashears, T. Directed Energy Stand-Off Molecular Composition Analysis, *Aerospace Conference 2017 IEEE Proceedings*, pp. 1-9, 4-10 March 2017, ISBN:978-1-5090-1613-6.

### **SPIE Proceedings – Planetary Defense and Space Environment Applications – August 2016**

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### **SPIE Proceedings – Photonic Instrumentation – February 2016**

- Hughes, G.B., Macasaet, V.P., Griswold, J., Sison, C.A., Lubin, P., Meinhold, P., Suen, J., Brashears, T., Zhang, Q. and Madajian, J. "A fast, high-precision six-degree-of-freedom relative position sensor," *Photonic Instrumentation Engineering III*, edited by Yakov G. Soskind and Craig Olson, Proc. Of SPIE Vol. 9754, pp. 975403-975403 (Feb, 2016).

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***In Review:***

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