

The Future of Electric Propulsion: A Young Visionary Paper Competition

35th International Electric Propulsion Conference, Atlanta, GA, 2017

Guidelines and Review Criteria

I. Overview

The Young Visionary Paper Competition seeks to identify individuals in the field of electric propulsion that are exceptionally skilled at promoting new ideas using a unique combination of technical knowledge, foresight, and articulation. To this end, participants are required to submit a paper and short video presentation addressing the theme, “The Future of Electric Propulsion.” *The due date for this submission is August 1st, 2017.* Instructions for the paper and video presentation are described below along with the competition review criteria.

II. Paper Guidelines

Young Visionary Papers must focus on the motivation and long-term impact of their subject as it relates to the competition theme, “The Future of Electric Propulsion.” Technical analysis should be used to describe the idea or concept in detail, and support claims relating to how the idea or concept will leverage electric propulsion technology to solve a problem of relevance to human, commercial, or societal aspirations in space. *Papers should identify electric propulsion concepts or applications with novel, far-reaching consequences.* Examples of “visionary” papers from other technical fields can be found in the references section of this document.

Young Visionary Paper subjects may include (but are not limited to) the following topics:

- Future missions using electric propulsion
- The impact of electric propulsion on space travel
- Emerging or groundbreaking concepts in electric propulsion
- Commercial opportunities for electric propulsion

Papers are required to follow the format below:

- Paper length: 10-page maximum (including references)
- Paper margins: 1” minimum
- Text font: 12 pt. Times New Roman
- Single-spaced

III. Video Presentation Guidelines

Along with the ability to identify real-world problems and conceive novel solutions, visionaries must be able to present their ideas to a broad audience in a clear and concise manner. With this ability, visionaries are able to gather support for their ideas and motivate actionable results. The purpose of the Young Visionary Competition video presentation is to distill and disseminate to a

broad audience the basic idea or concept presented in the paper. The video presentation does not need to follow a specific style – creativity is encouraged!

Example presentation styles:

- Cartoon: <http://phdcomics.com/tv/?v=4GbWfNHtHRg>
- TED Talk: https://www.ted.com/talks/david_gallo_shows_underwater_astonishments
- Animation: <https://www.youtube.com/watch?v=-aGISgOB6n0>

Videos should follow the format below:

- Video length: 4-6 minutes
- Video format: MP4
- Resolution: (1280 x 720) recommended, (640 x 480) minimum

IV. Milestone Review (Optional)

Because this is the inaugural competition, the organizing committee will provide an optional review of the papers and presentations prior to the final submission to ensure the work falls within the spirit of the competition. Although not required to meet these milestones, participants are highly encouraged to take advantage of this review.

Paper Milestone Review: Send paper draft to Rostislav.Spektor@aero.org by June 30.

Video Milestone Review: Send video draft to Rostislav.Spektor@aero.org by July 14.

V. Submission Instructions

DUE DATE: August 1st, 2017

INSTRUCTIONS:

1. Upload your video to VIMEO using the instructions provided at the following URL: <https://wmsnewmacs.wordpress.com/2012/01/21/how-to-password-protect-a-video-using-vimeo/>
2. Change the video password to IEPC2017
3. Find submission link at URL: <https://iepc2017.org/young-visionary-competition>
4. Fill out the required information
5. Upload your paper in .pdf format
6. Provide the URL to your uploaded video
7. Ensure all information is correct and hit “submit”

VI. Review Criteria

Reviews will be performed by a committee that is comprised of three members of the electric propulsion community with diverse academic, industry, and government backgrounds. The

committee will evaluate both the paper and presentation and assign numerical scores based on the criteria outlined below:

- Vision: Does the paper present a clear and concise vision of their idea or concept and its importance to the future of electric propulsion?
- Impact: Does the idea or concept present a new application of electric propulsion technology with far-reaching consequences?
- Analysis: Does the technical analysis support the feasibility of the idea or concept?
- Clarity: Are the idea or concept, its motivation, and potential impact presented in a clear and concise manner? Is the presentation able to generate excitement both within the scientific community and general public?

VII. Results

The winner of the competition will receive a \$1,000 award and may be invited to present the work at a morning plenary session of the IEPC 2017 (pending IEPC session scheduling). Notification of a possible invited talk will be given along with the award notification.

Young Visionary Competition papers will be included along with links to the video presentations in the IEPC 2017 conference proceedings.

References

Keller, U. "Ultrafast all-solid-state laser technology." *Applied Physics B: Lasers and Optics* 58.5 (1994): 347-363.

Lynd, L. R., et al. "How biotech can transform biofuels." *Nature biotechnology* 26.2 (2008): 169.

O'Brien, J. L. "Optical quantum computing." *Science* 318.5856 (2007): 1567-1570.

Sarro, P. M. "Silicon carbide as a new MEMS technology." *Sensors and Actuators A: Physical* 82.1 (2000): 210-218.

Papers can be downloaded using the link:

<https://drive.google.com/open?id=0B1rWT3O2bjMOMVNvMWVzaHRDR3c>