

The ASTRIC-MOSES Seminars

A four-part series of space science and engineering workshops taking place in 2016 thru 2017

The ASTRIC-MOSES Seminars: MOSES (Modular Organic-assembly Space-based Engineering System) and ASTRIC (Astronomical-object Reconnaissance Intervention and Countermeasures)

Four compact workshops with online participation and presentation, focusing upon:

Theoretical Foundations and Engineering Applications for the systematic and organic design of resilient, fault-tolerant, minimalist energy consumption, and long-term reusable/ reconfigurable platforms for space exploration, industrialization, agriculture, habitation and specific-target missions including planetary defense from asteroids and other space-intrusive objects. Specific topic areas include:

- MOSES (constructed with nPod architectures and other launch-and-reconfigure platforms)
- HALO (High-Altitude Lift-Launch-Land Operations)
- ASTRIC (remote deployable robotic nets with asteroids and other NEO as prime focus)
- ECCOS (deeper-space robot-human habitation; Exploration, Colonization and Commercialization of Outer Space)
- Long-term and autonomous energy harvesting, generation, and storage technologies
- Organic-structures and “biomeme” methods of engineering including self-assembly and fault-tolerance designs
- Planetary defense alternatives (including ASTRIC) and practical work on prototyping

These seminars are planned for small groups meeting in “roundtable” and informal formats, with presentations but primarily discussions as the norm, as seminars in the classic sense. The importance of “face to face” and bringing together diverse “roots and leaves” is considered to be of great value. In order to accommodate a diversity, breadth and scope of participation and knowledge exchange within the global scientific community, primarily among but not limited to particular segments of theoretical as well as applied fields relevant to space engineering, colonization and defense, there will be a real-time, on-line programme; this is currently being implemented in order to enable many scientists to not only “attend” but to have opportunities for Q/A and “mini-forum” discussions. This dimension of the Seminar Series is also being extended to provide unique educational and “online lab” project opportunities for students at all levels. Paramount in the educational and student-focused activity area is the implementation of prototypes – earth-based and space-based (low-orbit) for the ASTRIC system.

The meetings will take place in suitable facilities and accommodations for onsite meetings of 16 to 24 participants, and in the first three meetings, in close proximity with multiple noteworthy institutions. All teleconferencing technology including equipment has been arranged and will be provided by the conference organizing team.

Dates and Locations (prospective; including start/end partial days (main session is +1 and -1 period):

I. Primus Spring 2016 United States Catskill Region, New York 19-26.March (7)	II. Secundus Summer 2016 Scotland Edinburgh 2-9.July (7)	III. Tertius Fall 2016 Korea Seoul 9-17.October (8)	IV. Quartus Spring 2017 India Rajgir, Bihar State 8-16.April (8)
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On the next page are additional remarks regarding suggested thematic questions and issues. The ASTRIC-MOSES Seminar Series is one of the four Seminar Series sets managed by the Institute for Innovative Studies.

Organizing and Planning Document (preliminary near-final draft: 1.August.14 version)

I. Primus - Spring 2016

Focus: Theoretical and Engineering Foundations and Issues. Economic necessities and demands for exoplanetary civilization. Planetary risks from NEO threats, in particular asteroids and comet fragments. Planetary and exoplanetary defense alternatives and mechanisms in place and presently in design and preparation. Evaluation of engineering, economic and fail-safe factors within multiple approaches for multiple NEO collision threats.

II. Secundus - Summer 2016

Focus: MOSES type architectures. Application areas for MOSES type systems:

ASTRIC

Astronomical Object Retrieval, Intervention and Countermeasures. This is the dominant subject theme of the Series.

CBRAS

Chemical, Biological and radioactive Agent Surveying, Observation and Sensing (CBRASOS)

CMEMP

EMP Countermeasure by Counterpulse

EOM

Environmental Observation and Monitoring

EMPGT

Electromagnetic Power Generation and Transmission

RSBE

Remote Synthetic Biology Experimentation

SAC

Space-based Assembly and Construction

III. Tertius – Fall 2016

Focus: ASTRIC type architectures and engineering. Materials, component construction, in-space assembly, mission deployment. Launch considerations and options. Skylon-type launch and cargo capabilities. HALO system designs and mechanisms for assembly and maintenance in high-orbit and supply of materials and objects to and from Earth and to and from space-based installations (e.g., MOSES). Power and cabling systems for ASTRIC deployment and asteroid capture.

IV. Quartus - Summer 2017

Focus: Project Implementation – the Social, Economic and Political Dimensions of a Unified Space Program centered upon MOSES and ASTRIC valuations, objectives and missions. Development of a concrete plan for a second-generation ASTRIC demonstration system (Earth-based physical simulation) and a first-phase low-orbit system. Aim is to demonstrate significant working prototype elements and components of the control system and the core ASTRIC elements for asteroid-capture, as well as earth-launch capabilities. Considerations for known NEO events in years 2017 – 2050.

Additional Notes:

Intentionally, this Seminar Series is planned to synchronize with other “Coadunatio” Seminar Series (see www.instinnovstudy.org). Refer to <http://astrimoses.instinnovstudy.org> for more general information on the Series.

Presently (July, 2014) the organizing committee is being finalized. Persons with interest in becoming directly or indirectly involved in the organizing committee and in assisting with special tasks, as well as for participation, preparation, publications related to one or multiple seminars should make contact by email and then meetings can proceed via phone, Skype or teleconference. Key funding is already firmly in place. The primary sponsors are ECOADUNA Foundation (ecoaduna.org), TetraDyn Ltd. (tetradyn.com), KOIN Ltd. (koin.tdyn.org) and FORTE Horizons LLC (www.forte horizons.com).

Particularly in these challenging socioeconomic times, all resources for science, especially for theoretical physics, and for an event of this complexity, require creativity, innovation, determination and persistence. A combination of inventive fund-raising plans made by the primary organizers, all together provides a present substantive base to enable making this announcement in confidence of a successful seminar series. The international coming-together-of-diverse-minds is also an extremely important theme. The challenges in theoretical and applied physics, mathematics, and particularly in materials science and propulsion technologies, and the transition into feasible and realistic engineering, particularly for space-based systems such as MOSES and ASTRIC, are formidable, yet necessary tasks. Imminent risks of catastrophic proportions require radical and decisive Actions and Answers. This Seminar Series can be an important catalyst for new ideas and also new practices in our future world in which we all have an important stake.

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