

IEEE Control Systems Letters (L-CSS)

Call for submissions to L-CSS Special Issue: "Multi-agent coordination for energy systems: From model based to data-driven methods"

The L-CSS invites submissions for a **special issue** on "**Multi-agent Coordination for energy systems**" (to be included, tentatively, in the 2024 volume of L-CSS).

Authors are invited to submit **six-page** manuscripts for review on this topic. The deadline for initial submissions is: **June 30, 2023**.

Submission for the special issue will be possible starting on **April 01, 2023**. Submission instructions can be found in the L-CSS website at

http://ieeecsletters.dei.unipd.it/Page_authors.php?p=1

Guest Editors:

- **Luigi Glielmo**, University of Sannio, Benevento, Italy
- **Sergio Grammatico**, T. U. Delft, Netherlands
- **Hamed Kebriaei**, University of Tehran, Iran
- **Roy S. Smith**, ETH Zurich, Switzerland

Decentralized control architectures are paving the way for the next generation of energy system infrastructures, primarily due to the combination of the power network deregulation and the introduction of smart-grid concepts. On one hand the new framework offers an increased privacy and decision-making autonomy to the end-users, on the other it poses challenges due to the lack of control/monitoring of the cumulative behavior of a large number of end-users. To compensate for this uncertainty, the end-users need to coordinate (at different levels in the power system hierarchy) such that their aggregate behavior can help achieve the required global objective, without hindering their autonomy and privacy.

The coordination can either be achieved by the agents themselves (assuming that the agents are connected over a graph and can communicate information with each other) or can be facilitated by an external entity (if the agents communicate with some external entity and not with each other). Furthermore, the coordination can be categorized as cooperative, competitive or mixed based on the objective of the individual end-users.

Typical application scenarios include coordinating the flexible loads in a residential community for load smoothing, coordinating EV flexibility for grid-ancillary services, sharing of generation and/or energy storage resources in a microgrid and many more.

This special issue intends to collect new ideas and contributions, both theoretical and practical in the framework of multi-agent coordination for energy systems. The primary aspect of any contribution should be the novelty and originality. Also, the results should be presented in a mathematical language, according to the L-CSS standard.

Specific topics of interest for this special issue include, but are not limited to:

- decentralized algorithms for coordination of agents in cooperative, competitive and mixed settings;
- data-driven solutions such as rule-based control, and reinforcement learning in single agent and multi-agent settings.

A manuscript submitted to the special issue should be **six pages long** in the journal format (style files are available on [PaperPlaza](#)), which is a strict limit. The contribution may also be accompanied by **supplementary material** (up to 9 additional pages are possible). However, according to the journal policy, **the value of the submission shall be decided based only the main paper**, which must be self-contained, namely, the results can be understood and checked without reading the supplement. The supplement is intended to present complementary information, such as simulations, videos, figures, or examples, but not, for instance, theorem proofs or definitions. Some mathematical background can be added to the supplement, for the reader's convenience, if it is already existing in the literature. However, crucial new derivations must be in the main paper.

The manuscripts will be peer-reviewed by international experts. According to the L-CSS policy, the final decision will be made within two rounds of reviewing with no exceptions.

Important dates

Submission deadline: June 30, 2023.

(Accepted) Papers online publication: within one week from the submission of the final manuscript and in any case no later than 6 months after initial submission.