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## A System Node Approach to Port-Hamiltonian Partial Differential Equations

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**Abstract.** Infinite-dimensional state-space systems with boundary control and observation pose significant analytical challenges due to the typically unbounded nature of input and output maps. A common approach to establishing a solution theory, such as via a variation of constants formula, relies on the admissibility of input and output operators—an assumption that is often difficult to verify in practical applications. In this talk, we introduce a system node-based approach for port-Hamiltonian partial differential equations that (i) naturally extends the finite-dimensional input-state-output model proposed by Volker and coauthors in 2018 and (ii) seamlessly integrates boundary control and observation. The versatility of this approach is demonstrated through various examples, including beam equations, heat equations, wave equations, and Oseen equations.

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**Session Classification:** Talks