



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI INGEGNERIA DELL'ENERGIA ELETTRICA
E DELL'INFORMAZIONE "GUGLIELMO MARCONI"

Spring School PHMC 2023

Spring School on Port-Hamiltonian Modelling and Control, Bertinoro, Italy, 22-26 May 2023

Multi-physical systems are the working ground of existing engineering and scientific study. Multi-physical systems are therefore fundamental and are learned and treated in different ways in various curricula in academia. Unfortunately, many of the methodologies which are taught are not able to uniformly describe finite and infinite dimensional systems, their interconnection and control. This **spring school** starts from no previous knowledge other than standard basic academic undergraduate knowledge to introduce the students to the field of port-Hamiltonian systems **modelling** and **control design**. This is a unified way to model all physical systems in a unique way to treat simple



electrical network as well as complicated interaction of 3D elasticity parts moving in a fluid model with Navier-Stokes equations via decomposition and interconnection. The power of **port-Hamiltonian expressivity** is really remarkable and the organizers of the school have reason to believe that physics will be taught with such tools in the future.

Venue

The spring school will take place in the beautiful bishop's fortress of Bertinoro, located on the top of a hill in the heart of Romagna, between the cities of Forlì and Cesena, around 80Kms from Bologna.

Keynotes

- **B.Maschke** (LAGEPP, Univ. Lyon1, FR)
- **Avd Schaff** (Univ. of Groningen, NL)

Lecturers

- **Y. Le Gorrec** (FEMTO-ST/AS2M, FR)
- **A. Macchelli** (Univ. of Bologna, IT)
- **H. Ramírez** (Univ. Tecnica Federico Santa Maria, CHL)
- **F. P. Schuller** (Univ. of Twente, NL)
- **S. Stramigioli** (Univ. of Twente, NL)

Costs

The school fees of **650 Euros** include the registration (rooms, coffee breaks etc .) and lodging for the all week as well as breakfasts and lunches.

Organizers

- **Y. Le Gorrec** (FEMTO-ST/AS2M, FR)
- **A. Macchelli** (Univ. of Bologna, IT)
- **S. Stramigioli** (Univ. of Twente, NL)

Application and Contact

The school is limited to 50 participants. For updated information and the application form please visit our website

<https://ph-school.eu/>