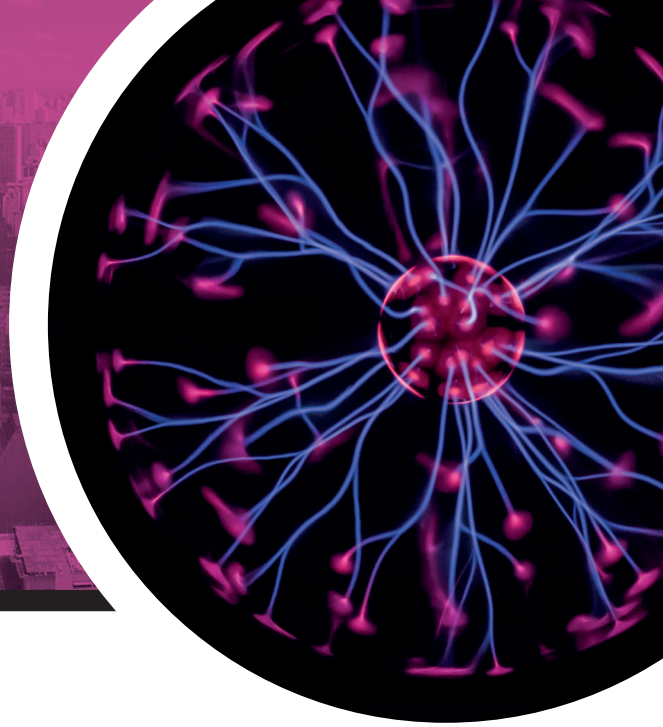


# PROGRAM ON ANOMALIES, TOPOLOGY AND QUANTUM INFORMATION IN FIELD THEORY AND CONDENSED MATTER PHYSICS



**June 16 – 27, 2025**  
at Principia Institute, São Paulo, Brazil

## LECTURERS

**Fiona Burnell** (U. of Minnesota, USA)  
**Horacio Casini** (Bariloche Atomic Centre, USA)  
**Paul Fendley** (U. of Oxford, UK)  
**John McGreevy** (UC San Diego, USA)

## WORKSHOP SPEAKERS

**Gerardo Aldazábal** (Instituto Balseiro, Argentina)  
**Valentín Benedetti** (ICTP, Italy)  
**Francesco Benini** (Sissa, Italy)  
**Fiona Burnell** (U. of Minnesota, USA)  
**Horacio Casini** (Instituto Balseiro, Argentina)  
**Claudio Chamon** (Boston U., USA)  
**Xie Chen\*** (Caltech, USA)  
**Paul Fendley** (Oxford, UK)  
**Davide Gaiotto** (Perimeter I., Canada)  
**Xiao Gang Wen** (MIT, USA)  
**Iñaki García-Etxebarria\*** (Durham, UK)  
**Diego Hofman** (U. of Amsterdam, Netherlands)  
**Stefan Hollands** (Leipzig U., Germany)  
**Taylor Hughes** (U. of Illinois, USA)  
**Po-Shen Hsin** (UCLA, USA)  
**Vladimir Juricic** (NORDITA, Sweden & U. Técnica Santa María, Chile)  
**Alex Maloney** (McGill, USA)  
**John McGreevy** (UC San Diego, USA)  
**Dmitry Melnikov** (UFRN, Brazil)  
**Max Metlitski\*** (MIT, USA)  
**Horatiu Nastase** (IFT-Unesp, Brazil)  
**Leo Radzihovsky\*** (U. of Colorado, USA)  
**Shinsei Ryu** (Princeton U., USA)  
**Ignacio Salazar Landea** (U. Nacional de la Plata, Argentina)  
**T. Senthil\*** (MIT, USA)  
**Dam T. Son** (U. of Chicago, USA)  
**Ho Tat Lam** (MIT, USA)  
**Gonzalo Torroba** (Instituto Balseiro, Argentina)  
**Joaquín Turiaci\*** (U. of Washington, USA)  
**Pedro Vieira** (Perimeter I., Canada & ICTP-SAIFR/IFT-UNESP, Brazil)  
**Ashvin Vishwanath** (Harvard U., USA)  
**Rodrigo Pereira** (IIP & UFRN, Brazil)  
**Jose Carlos Egues** (USP, Brazil)  
**Vivian França** (UNESP-Aranquera, Brazil)  
**Wei Chen** (PUC-Rio, Brazil)

\*To be confirmed

The Landau paradigm for characterizing phase transitions is living a renaissance at present. This interest has grown in parallel on several forefronts of research – including condensed matter physics, topological quantum field theory, quantum field theory in its various axiomatic approaches (e.g. Euclidean path integrals, bootstrap, algebraic), and quantum information. In all these fronts, the concepts of generalized symmetries, generalized order parameters and anomalies have played a prominent role, and have allowed a conceptual unification of different problems in the various fields. The dream is that these concepts might provide a unified perspective on the classification of general phases of matter.

This two-week program brings together researchers from all these different disciplines, so that recent discoveries can be shared and critiqued, and the next steps can be envisioned. In the first week, four lecturers, Fiona Burnell, Horacio Casini, Paul Fendley, and John McGreevy will review recent developments in the field, and there will be open discussions. Topics will include: generalized symmetries in condensed matter physics, topological field theories, quantum information and symmetries in quantum field theory, experimental developments and symmetries in anyon models. The second week will host a standard conference event with seminars by invited speakers.

There is no registration fee and limited funds are available for local expenses.

**Application deadline: April 26, 2025**

**Online application and more information:  
[ictp-saifr.org/patqi2025](https://ictp-saifr.org/patqi2025)**

## ORGANIZERS

**Eduardo Fradkin** (University of Illinois, USA)  
**Marina Huerta** (Instituto Balseiro, Argentina)  
**Gustavo Lozano** (Universidad de Buenos Aires, Argentina)  
**Javier Magán** (Instituto Balseiro, Argentina)  
**Rodrigo Soto-Garrido** (Pontificia Universidad Católica de Chile)  
**Jorge Zanelli** (Universidad San Sebastián & CECS Valdivia, Chile)