

# New Pathways in Explorations of Quantum Field Theory and Quantum Gravity Beyond Supersymmetry



**24 June – 5 July 2019**  
**Trieste, Italy**

Further information:  
<http://indico.ictp.it/event/8719/>  
[smr3340@ictp.it](mailto:smr3340@ictp.it)

The workshop will cover novel methods developed to understand non-perturbative phenomena in quantum field theory and quantum gravity, in the non-supersymmetric realm. This includes the formulation of non-perturbative dualities in QFT and their application in condensed matter systems; the study of symmetries and their anomalies, including the most modern incarnations, in diverse dimensions; the analysis of aspects of the swampland, through the application of string theory to phenomenological and cosmological problems; the investigation of quantum information theoretic methods and their interplay with QFT concepts like causality, entanglement entropy, and so forth. There will be ample time left for discussion and the initiation of new collaborations.

In parallel, the School will pedagogically introduce some of the fundamental subjects that are useful in the exploration of non-perturbative phenomena in non-supersymmetric quantum field theories and quantum gravities. The School will be integrated with the Workshop in a novel way: there will be school lectures in the mornings, and a light load of workshop talks in the afternoons.

## Topics:

- Non-supersymmetric dualities
- Generalized symmetries and anomalies
- Swampland conjectures in quantum gravity
- Quantum information and causality in QFT

## How to apply:

Online application:  
<http://indico.ictp.it/event/8719/>

Female scientists are encouraged to apply.

## Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

## Organizers:

F. BENINI, SISSA  
A. DABHOLKAR, ICTP  
L. PANDO ZAYAS, University of Michigan  
P. PUTROV, ICTP  
C. VAFA, Harvard University

## Speakers include:

D. GANG, KIAS  
S. GUKOV, Caltech  
D. HOFMAN, Amsterdam  
Z. KOMARGODSKI, Stony Brook  
M. MONTERO, Leuven  
K. OHMORI, IAS  
D. RADICEVIC, Perimeter  
A. SEN, HRI  
S-H. SHAO, IAS  
G. SHIU, Wisconsin  
J. WANG, IAS  
X. YIN, Harvard

## Deadline:

**5 May 2019**

