# Advanced Workshop on Accelerating the Search for Dark Matter with Machine Learning

**ICTP**

**8 - 12 April 2019**
**Trieste, Italy**

## Overview:

This workshop is the second edition of a series of yearly meetings of the Dark Machines community (http://darkmachines.org/), a research collective of physicists and data scientists. The aim of the workshop is to answer cutting edge questions about dark matter with the most advanced techniques that data science provides us with. The researchers coming to this workshop will bring together expertise in particle physics, astrophysics, cosmology, statistics and information science (machine learning) and plenty of time will be devoted to discussions and brainstorming.

## Workshop Format:

The workshop will have plenary sessions covering the main topics in the field of machine learning and dark matter. In addition, there will be a limited number of parallel talks. We encourage scientists interested to present their work on applications of machine learning to dark matter problems to submit their abstracts.

Afternoons will be devoted to hands-on sessions, during which the participants will work on the ongoing darkmachines challenges (listed here http://darkmachines.org/#projects) or propose and start new ones.

## Organizers:

**A DE SIMONE, SISSA**
**G. ZAHARIJAS, CAC/UNG**
**P. ULLIO, SISSA**

## Local Organizer:

**P. CREMINELLI, ICTP**

## Invited Speakers include:

**A.G. BAYDIN, University of Oxford**
**J. CONRAD, Stockholm University**
**C. DOGLIONI, Lund University**
**T. ENSSLIN, MPA Garching**
**N. MORIAKOV, Radboud U. Medical Center**
**D.J. REZENDE, DeepMind, London**
**P. SERPICO, LAPTH, Annecy**
**S. VEGETTI, MPA Garching**
**J. ZAVALA FRANCO, University of Iceland**

## Coordinators of Dark Machines Challenges include:

**N. FORNENGO, University of Torino**
**F.C. GIESEKE, University of Copenhagen**
**F. IOCCO, ICTP-SAIFR**
**E. MERENYI, Rice University**
**M. WHITE, University of Adelaide**

## Scientific Organizing Committee:

**G. BERTONE, GRAPPA, Amsterdam**
**F. CALORE, LAPTH, Annecy**
**S. CARON, NIKEF, Nijmegen**
**T. DORIGO, University of Padova**
**G. LOUPPE, University of Liège**
**R. RUIZ DE AUSTRI, IFIC, Paterna**

## How to apply:

Online application:
http://indico.ictp.it/event/8674/

Female students and 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.

## Deadline:

# 15 January 2019

**INFN** Istituto Nazionale di Fisica Nucleare

**ifpU**

**ICTP** The Abdus Salam International Centre for Theoretical Physics
www.ictp.it
Trieste, Italy

**IAEA**