

# Colloqui della Classe di Scienze

Anno Accademico 2019/2020

Sala Stemmi | Palazzo della Carovana  
Scuola Normale Superiore  
Piazza dei Cavalieri, 7 - PISA

**12 FEBBRAIO 2020**

ore 15.00

**GIANFRANCO BERTONE**

University of Amsterdam

*A new era in the quest for dark matter*

**ABSTRACT:**

The existence of dark matter has been discussed for more than a century. In the 1970s, astronomers and cosmologists have then began to build what is today a compelling body of evidence for this elusive component of the universe, but the Standard Model of particle physics contains no suitable particle to explain these observations, and thus dark matter arguably represents a glimpse of “new physics”. The nature of dark matter remains today poorly constrained, with proposed candidates spanning 90 orders of magnitude in mass, ranging from ultra-light bosons to massive primordial black holes. I will discuss what we have learned about the nature of dark matter from past experiments, and argue that a new era has begun for dark matter searches. I highlight in particular the importance of diversifying the experimental effort, and of exploiting the extraordinary opportunities offered by upcoming astronomical surveys and gravitational wave interferometers.



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Info: Area Ricerca e Didattica - [classi@sns.it](mailto:classi@sns.it)