

Plenary Talk PLV III Tue 8:30 ZHG011
The Quantum Roots of the Cosmos — ●GIANFRANCO BERTONE
— University of Amsterdam, Amsterdam, 1098 XH, Netherlands
Quantum physics has far-reaching consequences beyond the micro-
scopic: physicists tackling the greatest puzzles in cosmology - dark
matter, dark energy and the Big Bang - routinely draw on their quan-

tum field theory toolkit for answers. Gravitational-wave astronomy
offers a new frontier to unlock these mysteries and forge a connection
between the micro- and macrocosmos. As an example, I show how
future interferometers will allow us to probe the matter surrounding
black holes, opening up the possibility to discover new quantum fields,
and to characterise the fundamental nature of dark matter.