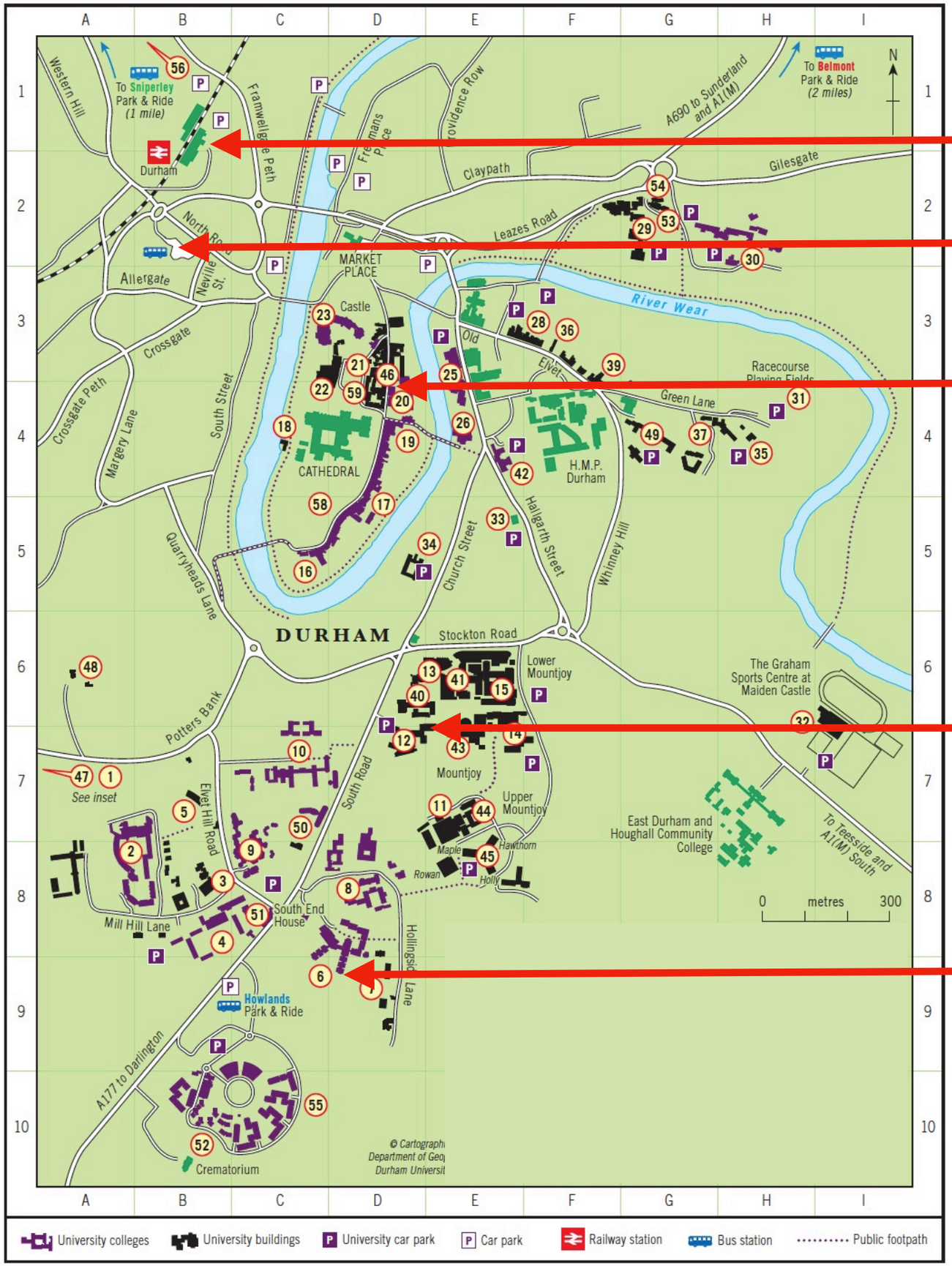


Durham station

Durham bus station

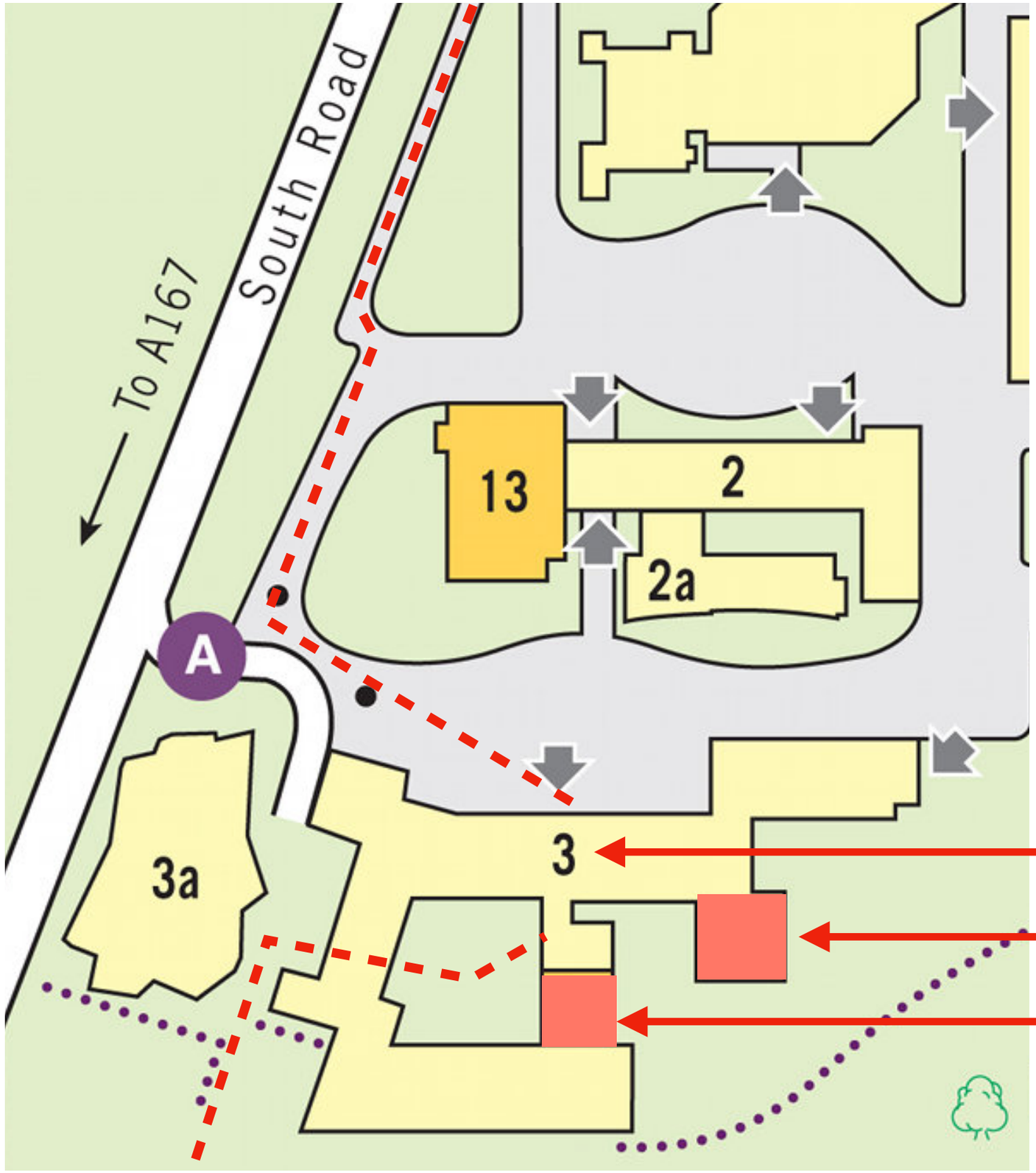
Hatfield College Dining Hall

Rochester Building

Collingwood College

Durham city Map

Way from city centre (main station)



Science Site Map

Reception

YETI lecture hall (PH30)

QSFP lecture hall (PH8)

Way from Collingwood

How to get from ...

Durham station to Collingwood College

Collingwood College is about 10 min by Taxi from Durham station and should cost ~ £10 (https://goo.gl/maps/KEUD6vWhXP5xnjPP6). Alternatively, one can take bus line 6 or S1 from the Bus station (a 5-10 min walk from the station) to South Road Colleges and walk 2 min up to Collingwood (https://goo.gl/maps/MZJqmsgxah9ALYSD6). A ticket is about £2.50.

Durham station to Rochester Building

Collingwood College is about 7 min by Taxi from Durham station and should cost < £10 (https://goo.gl/maps/Yhys1hdwdDt2iAiq5). Bus lines 6 , 56, 57, 57a and X12 max run from the Bus station to to New Inn-Church Street, which is a 2 min walk from Rochester building (https://goo.gl/maps/UseAxBvCUj7SVRzC9).

Collingwood College to Rochester Building

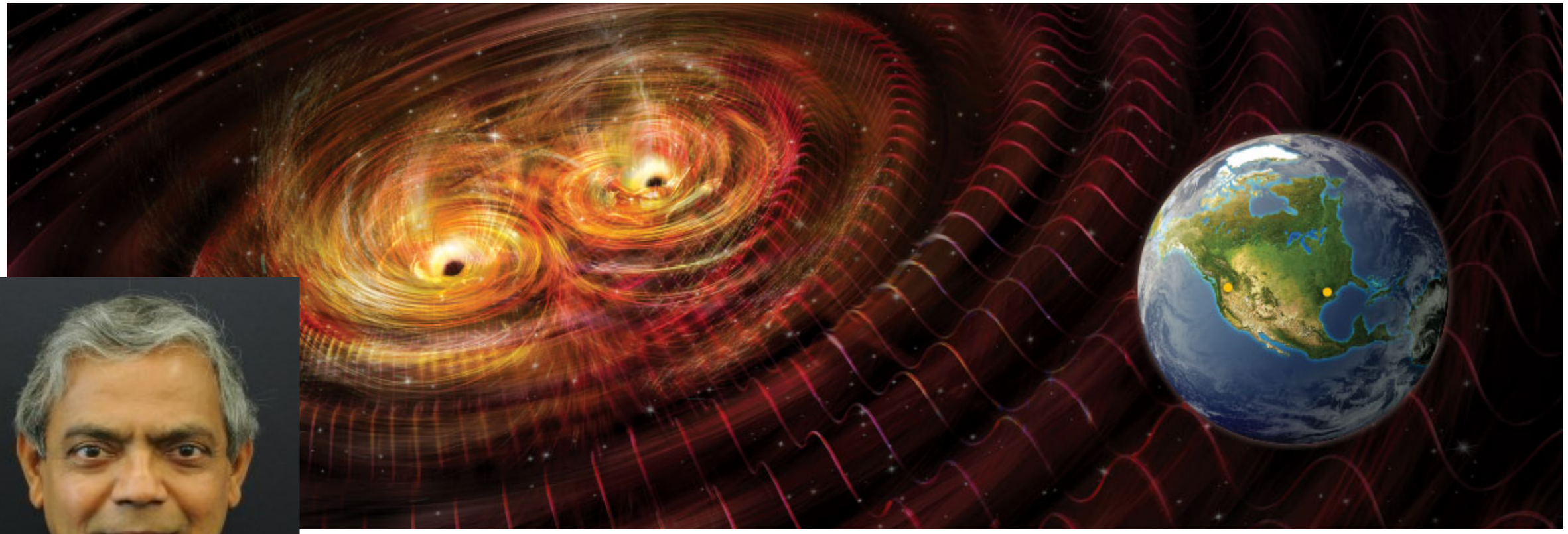
Collingwood College is a 5-8 min walk from Rochester building (https://goo.gl/maps/rYyZjhfxWRRCw5cSA).

Collingwood College to Hatfield dining Hall

The Hatfield dining hall is a scenic 22 min walk from Collingwood College (https://goo.gl/maps/ERJVE5v5Fx1gtrFH6)

Public lecture:

Gravitational waves: A new window to uncover the dark and dense Universe



B.S. Sathyaprakash

Penn State University USA and Cardiff University UK

Monday January 6th 2020 starting 19.30, Rochester Building, Room PH8

In 2015 Laser Interferometer Gravitational-wave Observatory (LIGO) in the USA made the first direct detection of gravitational waves from a pair of colliding black holes, thus confirming a key prediction made by Einstein one hundred years before. In 2017 LIGO and the European Virgo observed the coalescence of a pair of neutron stars that helped astronomers observe the fireworks in its aftermath in every wavelength of the electromagnetic spectrum. These observations have ushered in a new era in fundamental physics, observational astronomy, and cosmology. In this talk I will describe the numerous outstanding puzzles solved by these observations and how they also raise many unanswered questions. With the prospect of observing the entire Universe with new detectors such as the Laser Interferometer Space Antenna, Einstein Telescope, and Cosmic Explorer, gravitational-wave astronomy promises to unravel cosmic mysteries and provide a new tool for exploring the Universe.

Panel Discussion:

What is the Future of Fundamental Physics?

What are the next big steps in the search for the most fundamental principles of nature? What are the most pressing open questions and which experimental techniques are the most promising to answer them? What are the most exciting results anticipated in the upcoming decade? During our panel discussion on Tuesday, these and other questions from the audience will be answered by a diverse panel of experts in a variety of fields.

Tuesday January 7th 2020 starting 19.30, Rochester Building, Room PH8

Nicola McConkey is an experimental Neutrino physicist. She works on noble gas particle detectors used in Neutrino physics and in searches for dark matter.

Sir **Peter Knight**'s research has been at the forefront of quantum optics and quantum information science. He has worked on theoretical quantum optics, strong field physics and especially quantum information science.

Ian Shipsey is an experimental particle physicist. Ian studies heavy quarks and the Higgs Boson, searches for dark matter, and studies dark energy. He develops the instrumentation that enables these studies; most recently a pixel detector that identified the Higgs Boson for the first time.

Fabrizio Trovato is an experimental particle physicist working on collider searches for New Physics. He analyses data taken by the Large Hadron collider at CERN.

Moderated by
Gabriel Gallardo
(email)