UNIVERSITY OF LIVERPOOL

# Online Nuclear Physics Masterclass

Register HERE

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| Session 1<br>Wednesday<br>24th June | **Radiation Shielding**<br>Talks by<br>• Miss Jaimie Platt, PhD student at the University of Liverpool<br>• Mrs Jess Heaps, Health Physicist at Rolls Royce<br>Activities<br>• Undertake a virtual experiment to study the attenuation of gamma radiation in materials<br>• Design shielding for a nuclear industry problem |
| Session 2<br>Wednesday<br>24th June | **Nuclear Shapes and Sizes**<br>Talks by<br>• Prof Bradley Cheal, Professor at the University of Liverpool<br>• Dr Liam Gaffney, Research Fellow at the University of Liverpool<br>Online activities<br>• Use our interactive map to discover where nuclear physics researchers do their experiments and perform independent research about the facilities |
| Session 3<br>Wednesday<br>1st July | **Nuclear Instability**<br>Talk by<br>• Prof Rodi Herzberg, Professor at the University of Liverpool<br>Activities<br>• Build your own decay chains<br>• Investigate the decay equation |
| Session 4<br>Wednesday<br>1st July | **Nuclear Medicine**<br>Talks by<br>• Dr Amina Patel, Medical Physicist at Royal Brompton & Harefield Hospitals<br>• Dr Laura Harkness-Brennan, Reader at the University<br>Activities<br>• Discover how much radiation dose is received in different medical procedures<br>• Test your knowledge in our online quiz |
| Session 5<br>Wednesday<br>8th July | **Gamma Radiation and the Inverse Square Law**<br>Talks by<br>• Dr Ren Cooper, Deputy Head of the Applied Nuclear Physics Program at Lawrence Berkeley National Laboratory<br>• Miss Olivia Voyce, PhD student at the University of Liverpool<br>Activities<br>• Undertake a virtual experiment to study the inverse square law<br>• Use your knowledge of the inverse square law to design the geometry of a gamma detection measurement |
| Session 6<br>Wednesday<br>8th July | **Essay Competition**<br>Submit your essay by Wednesday 22nd July. to win prizes<br>• 1st place: £100 Amazon voucher, signed copy of "Introduction to the Physics of Nuclear Medicine by L Harkness-Brennan" and access to a mentor from the University of Liverpool Nuclear Physics Group for the 2020/2021 school year<br>• 2nd place: £50 Amazon voucher and access to a mentor from the University of Liverpool Nuclear Physics Group for the 2020/2021 school year<br>Talks with guidance on the essay topics and tips for writing by:<br>• Dr Laura Harkness-Brennan, Reader at the University of Liverpool<br>• Dr Helen Vaughan, Senior Lecturer at the University of Liverpool |
| **Careers Showcase**<br>Each week we will add videos from speakers in the nuclear sector who will talk about their career path and information about their current role. | |

**How do I access the masterclass material?**
To access the material, **please register here**. You will then be sent the website details to connect. The material will be available until 22nd July 2020.

**Who is this masterclass for?**
The masterclass is for year 11, 12 and 13 students studying physics. The content focuses on demonstrating how nuclear physics relevant to the A-level curriculum is applied in nuclear physics research and nuclear industry careers. Different careers will also be highlighted.

**What equipment do I need?**
The only equipment you will need is access to a desktop computer or laptop that has internet access. All activities will be run through a website that is compatible with common browsers including Chrome and Firefox. Please note it is not possible to access the material through a tablet or mobile phone at this time.

**Do I have to go to into my school to participate?**
No, you don't have to go to your school to participate and you can access the material any time until 22nd July 2020.

**Can I ask questions to the speakers?**
Yes! You can watch the videos at any time and then if you have any questions you can submit them online.