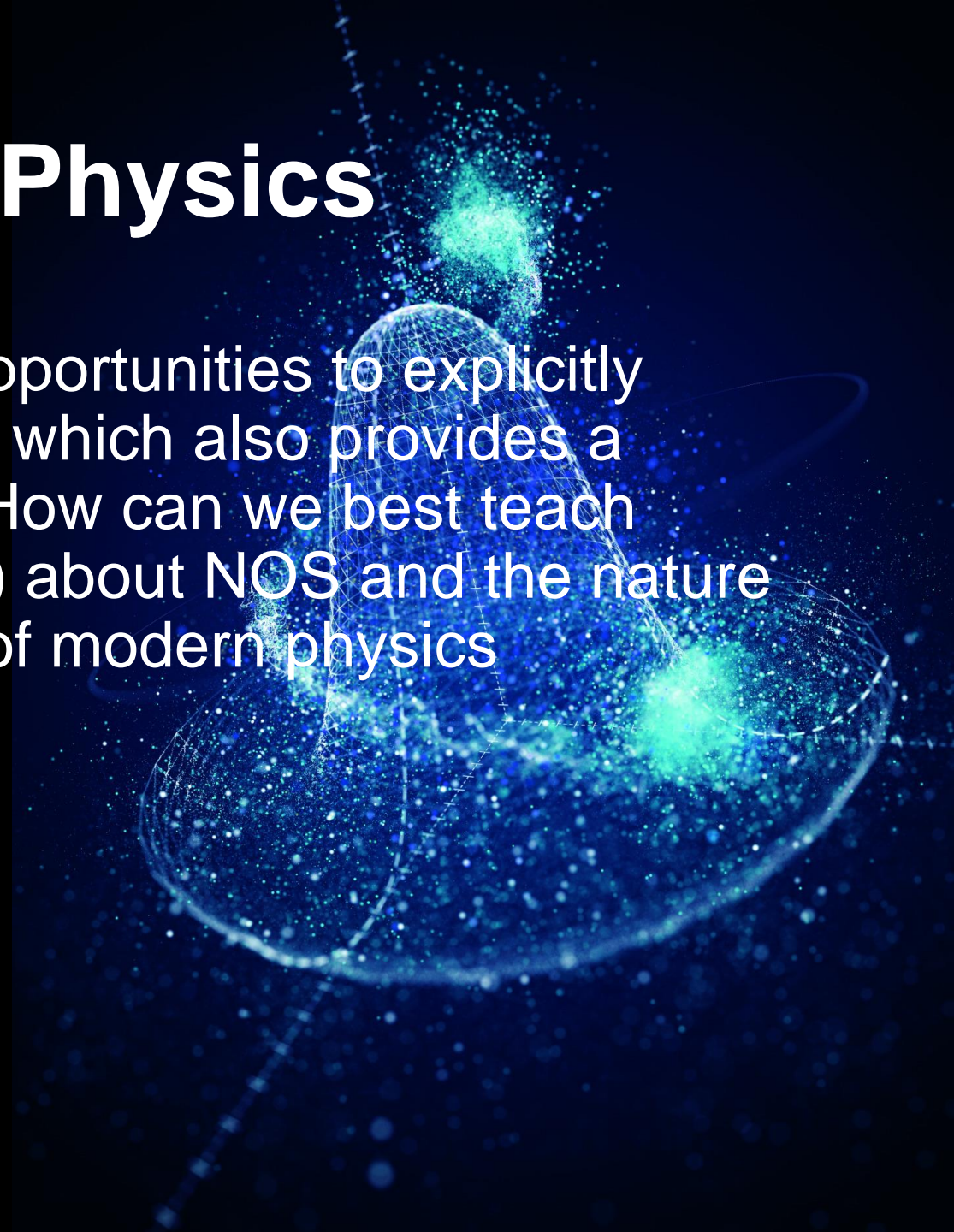


Which of the following topics  
would you like to discuss  
further?

# The Nature of Modern Physics

Modern physics topics are fantastic opportunities to explicitly address the Nature of Science (NoS), which also provides a direct link to many science curricula. How can we best teach students and teachers (and scientists) about NOS and the nature of scientific models in the framework of modern physics education?



# Inclusive Physics Education

How can modern physics education research help increase diversity and inclusivity in STEM fields? What strategies can we implement to provide equitable access to modern physics education, particularly in regions with limited resources and opportunities?



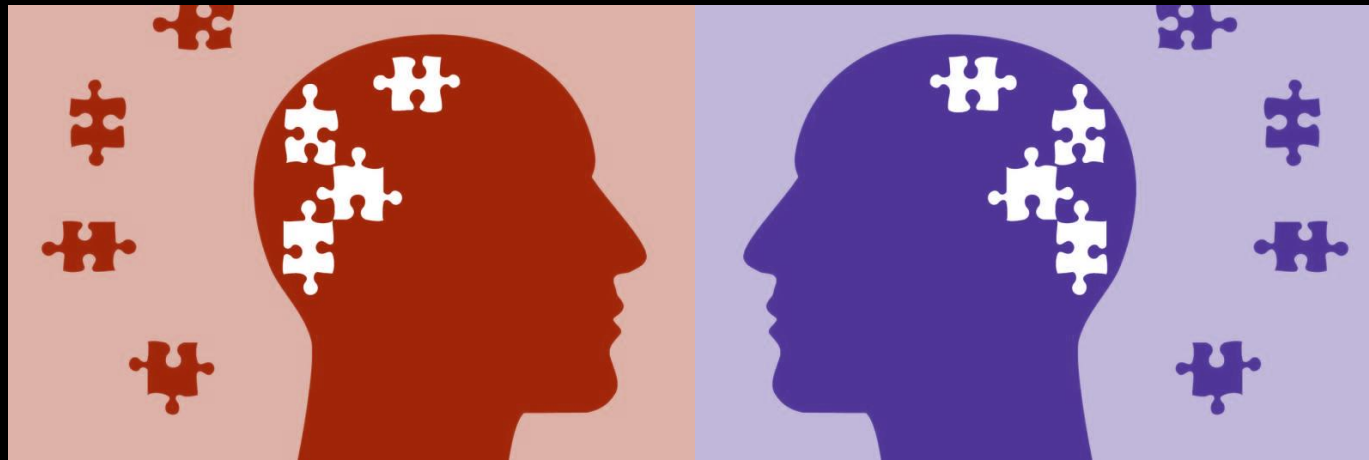
# Maximising Educational Impact



How can we fully utilise modern physics topics to foster interest, self-concept, and career aspirations among young learners? How do we assess the long-term impact of modern physics education? How do we reach beyond those already interested and motivated, especially in out-of-school settings?

# Student Conceptions & Mental Models

Compared to other physics education topics, there are only a few studies reporting on mental models and students' conceptions of a few selected modern physics concepts. But knowledge of students' conceptions is needed for effective teaching and evaluation. How do we close the gaps and make the fragmented research results more coherent? How can we best avoid mixed models in which students confuse classical and modern physics concepts?



# Design and Comprehension of Learning Resources

How can we design effective learning resources considering the complexity of modern physics that often involves unobservable entities and requires understanding at multiple levels (symbols, mathematics, (sub)microscopic world, macroscopic world)? How can we make educational representations more accessible to students and aid in their comprehension? Given the proven success but time-consuming nature of the Model of Educational Reconstruction (MER) and design-based research in modern physics topics, how do we strategise their use?

# Teacher Preparedness and Motivation

What are the best methods to prepare and motivate teachers to instruct modern physics topics? How can we ensure teachers feel competent and enthusiastic about teaching these topics?



# Incorporating New Technologies

How can we effectively incorporate new technologies like AI, AR, VR, simulations, and online learning into teaching modern physics? How can we leverage these technologies to communicate complex and abstract concepts?





# Curricula Development and Evaluation



How do we incorporate more modern physics topics into the curriculum? How do we evaluate learning goals in modern physics education in the absence of standardised tests and proven exam questions?



# Community and Practice

How do we unite the physics education research community that is distributed across many different countries, institutions, and projects? What are some ways to professionalize physics education research and make our efforts more cumulative, particularly in modern physics? How do we ensure that findings from modern physics education research are widely disseminated and implemented within educational institutions?