UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

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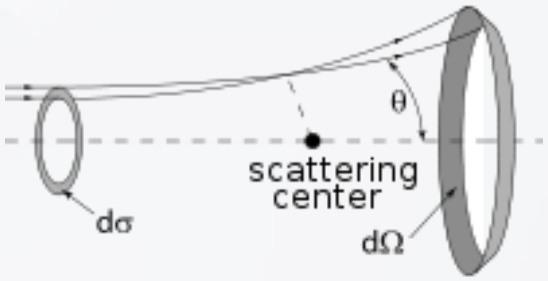
S E M I N A R



The Hodograph as a Visual Aid in the Study of Charged Particle Collisions:

Algebraic Geometry applied to the description of Charged Particle Trajectories in the Classical Path Approximation

Speaker

Prof John Douglas Hey, MRSSAf

School of Chemistry & Physics
University of KwaZulu-Natal

Date:
Friday, 22 March 2024

Time:
11h00-12h00 SAST

Venue:

- NITheCS Seminar Room
  University of KwaZulu-Natal
  Westville Campus
  3rd Floor, H-Block,
  School of Chemistry and Physics
- Online

Refreshments will be served.

Enquiries:
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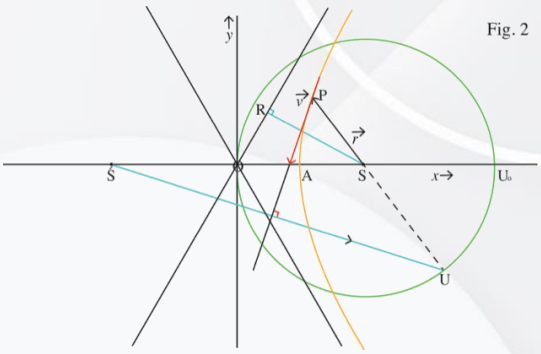
ABSTRACT:

We shall examine the historical origin of the hodograph and its use as a descriptive aid in the study of particle motion governed by the interaction with a centre of force (both attractive and repulsive). This brief excursion will take us from the *Principia Mathematica* of Newton to the novel insights of both Hamilton and Maxwell, thereafter extended to modern applications, such as particle collisions between energetic ions and atoms in the boundary layers of fusion plasmas.

The speaker will leave the younger members of the audience with the challenging task of extending these ideas to the quantum-mechanical description of particle interactions by means of the momentum representation of wave-functions and operators.



WHO SHOULD ATTEND?
This is a colloquium talk intended to be accessible to postgraduate students.

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NRF National Research Foundation