



## RSPP seminars



UNIVERSITY OF  
**LEICESTER**

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### “Catching Comets by their Tails”

When a comet near the Sun, volatile materials near the surface of its nucleus sublimate, releasing gas. These gaseous atoms and molecules are ionized through several processes. Once this happens, the ions join the solar wind flowing outwards from the Sun. Some of these ionized species glow, and are visible as the comet's ion tail. Due to the frozen-in magnetic field of the solar wind, this addition of mass causes the draping of magnetic fields around the comet's head, creating an induced magnetotail. In this presentation, the formation, appearance, and structure of these ion tails will be covered. Much of what has been learnt about these tails derives from unexpected ion tail crossings by spacecraft not targeted at comets, sometimes several astronomical units downstream of the comets' heads. An overview of these unexpected crossings will be provided, and how further events of this kind are being searched for in archival data. Finally, strong evidence is building of the solar wind's additional significant effects on comets' dust tails; the latest findings in this area will also be presented.

**Wednesday, October 10<sup>th</sup> at 2 pm in Physics LTD**