

School of Physical Sciences Seminar

Speaker: **Dr. Brian Hare (University of Groningen)**

Title: about **LIFT: Lightning corona Imaging From a radio Telescope.**

Date: Thursday 10 March at 1pm

Location: Room SA217 and on Zoom at:

<https://dcu-ie.zoom.us/j/99145308425?pwd=WjdLUE5xSDBLS3p5Q216UFd3WHkyUT09>

Meeting ID: 991 4530 8425

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Abstract: In recent years LOFAR has proven itself to be the world-premier lightning radio imager. However, progress is hampered by the fact that the best lightning models still operate on a spatial scale that is smaller than even present LOFAR observations. For example, it is thought that the lightning corona (the weakly-conducting plasma surrounding the well-conducting core) is responsible for VHF emission, but the mechanism of lightning VHF emission is still not entirely clear. Fortunately there is still significant room to exploit LOFARs wide frequency band, polarization, and imaging characteristics to push LOFAR lightning imaging to even smaller scales. In this talk I will present the newly funded ERC starting grant LIFT: Lightning corona Imaging From a radio Telescope, which aims to image lightning with enough detail to impact state-of-the-art modeling. This project will leverage new capabilities of LOFAR 2.0, including: significantly wider frequency band in order to distinguish between different radio emission models, and continuous real-time imaging of lightning in order to orient our observations in the wider thunderstorm context. Finally, I will discuss very recent science done to work towards these goals by extracting the full 3D polarization of lightning radio sources. This new 3D polarization information is already producing tantalizing implications for the structure of the lightning corona.

Everyone welcome!