

Abstract Submitted
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Experimental and Numerical investigations into AKR generation processes¹ KEVIN RONALD, DAVID SPEIRS, KAREN GILLESPIE, SANDRA MCCONVILLE, ALAN PHELPS, University of Strathclyde, ROBERT BINGHAM, Rutherford Appleton Laboratory, ADRIAN CROSS, CRAIG ROBERTSON, COLIN WHYTE, WENLONG HE, University of Strathclyde, ALAN CAIRNS, IRENA VORGUL, University of St. Andrews, BARRY KELLETT, Rutherford Appleton Laboratory — Energetic electron streams descending through the auroral magnetosphere are subject to magnetic compression, increasing their gyration energy which in turn relaxes through cyclotron maser emission in the kilometer band, the Auroral Kilometric Radiation (AKR). A scaled experimental and numerical program has been undertaken to demonstrate the mechanism of this process at microwave frequencies in the laboratory. Recent progress has included the introduction of a low temperature, low density background plasma into the experiment to replicate the residual low energy particles in the auroral magnetosphere and the investigation of the response of the instability to the cyclotron detuning in 3D PiC codes. These tests are important to determine the potential absorption of the radiation at the upper hybrid resonance.

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