

## **RADIO PULSES IN DENSE MEDIA: SIMULATION VERSUS APPROXIMATIONS**

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We calculate radio pulses from high energy showers in ice using the depth development of the charge excess together with fits to the lateral distribution obtained in detailed shower simulations. These approximations allow the calculation of pulses from EeV showers. The results for the spectrum and angular distribution of the electric field are compared to full radio emission simulations. The accuracy and ranges of validity of the approximations are addressed.