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## **REAS3: A revised implementation of the geosynchrotron model for radio emission from air showers**

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The Monte Carlo-code REAS simulates radio emission from cosmic ray air showers based on the geosynchrotron model. In this talk, we present a revised version of the geosynchrotron model as implemented in REAS3. In the previous version of the code, emission due to the variation of the number of charged particles within an air shower was not taken into account. These emission contributions were implemented in the model by the inclusion of “end-point contributions”. With this revision, the structure of the simulated radio pulses changes from unipolar to bipolar, and the azimuthal emission pattern becomes nearly symmetric. Remaining asymmetries can be explained by radio emission due to the variation of the net charge excess in air showers, which is automatically taken into account in the new implementation. REAS3 constitutes the first self-consistent time-domain implementation of a radio emission model taking the full complexity of air shower physics into account. The predictions of REAS3 on radio emission and the possibilities for application of REAS3 will be presented as well.

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