

## Generation of runaway electrons by atmospheric radionuclides in a thunderstorm electric field

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The influence of runaway electron generation by natural atmospheric radionuclides in a thunderstorm electric field is examined. The behavior of radiation emitted by radon, thoron and their decay products in the electric field was analyzed by Monte Carlo calculations. The results showed that a large amount of ion pairs are produced in air when the electric field intensity exceeds 250 kV/m at the altitude of 2 km (about 320 kV/m at the sea-level equivalent pressure). It is shown that the atmospheric radionuclides significantly influence the ionization within the thundercloud, and this suggests that the electric conductivity of the air may rise precipitously in the presence of a thunderstorm electric field.