



# Coherent Cherenkov Radiation from Cosmic-Ray-Induced Air Showers

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Very energetic cosmic rays entering the atmosphere of the Earth will create a plasma cloud moving with almost the speed of light. The magnetic field of the Earth induces an electric current in this cloud which is responsible for the emission of coherent electromagnetic radiation. We propose to search for a new effect: due to the index of refraction of air this radiation is collimated in a Cherenkov cone. To express the difference from usual Cherenkov radiation, i.e. the emission from a fast moving electric charge, we call this magnetically-induced Cherenkov radiation. We indicate its signature and possible experimental verification.

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