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Enhancing the High School Physics Experience with Cosmic Ray Research – The Cosmic Ray Observatory Project (CROP) in Nebraska¹

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The Cosmic Ray Observatory Project (CROP) is a statewide education and research experiment involving Nebraska high school students, teachers, and university undergraduates in the study of extensive cosmic-ray air showers. A network of high school teams construct, install, and operate school-based detectors in coordination with University of Nebraska physics professors and graduate students. The detector system at each school is an array of scintillation counters recycled from the Chicago Air Shower Array in weather-proof enclosures on the school roof, with a GPS receiver providing a time stamp for cosmic-ray events. The detectors are connected to triggering electronics and a data-acquisition PC inside the building. Students share data via the Internet to search for time coincidences with other sites. CROP has enlisted 27 schools in its first five years of operation with the aim of expanding to the 314 high schools in the state over the next several years. The presentation will highlight the scientific, educational, and professional development achievements of the project to date.

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