

Abstract Submitted
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Noninvasive Prospecting for Lunar Minerals¹ JOHN MEREDITH,
Hendrix College — The establishment of a lunar base is planned as the first step in sending humans to explore our solar system. One of the essential ingredients for supporting a manned lunar base is oxygen. Significant deposits of the mineral ilmenite, a titanium-iron oxide, are thought to occur on or near the lunar surface; oxygen can readily be extracted from ilmenite. A potential noninvasive way of exploring for lunar ilmenite is with the use of a ground-penetrating radar system. In order to validate the approach, a ground-penetrating radar system will be used to explore for deposits of naturally occurring ilmenite in the state of Arkansas. Once the deposits have been identified by the ground-penetrating radar system, samples will be extracted from these deposits and analyzed for the presence of ilmenite. Our initial results indicate that a scanning electron microscope can determine the presence of ilmenite and validate the utility of using ground-penetrating radar as a noninvasive method of exploring for ilmenite. Results from this ongoing project will be presented.

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