IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Lift Off - Secondary Space Education (2)

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METEORITE ANALYSIS AS AN EDUCATIONAL TOOL AT THE SHARJAH ACADEMY FOR ASTRONOMY, SPACE SCIENCES, AND TECHNOLOGY

Abstract

UAE High School students have the opportunity to learn about the formation of the solar system through analysis of meteorites using the "Meteorite Center" located at the Sharjah Academy for Astronomy, Space Sciences, and Technology (SAASST). This unique educational experience falls under a SAASST program of promoting space sciences education using the academy's various research laboratories. This paper showcases how the students use the different instruments available at the center to check for meteorites. Students learn how to perform the initial tests (density, appearance, magnetic test, and streak test) in the first phase. Upon passing these tests successfully, further in-depth analysis takes place using advanced analytical techniques such as X-Ray Diffraction (XRD) and X-Ray Fluorescence (XRF) available at the Center for Advanced Materials Research at the University of Sharjah. The XRF is an excellent test to determine the sample elemental composition without differentiating the different chemical compounds. If this test does not give a conclusive result of the sample being a meteorite, the XRD test is then conducted to provide the sample composition in terms of compounds present, degree of crystallinity, and its amorphous content. The students get first-hand experience applying the XRF or the XRD test, or both and know the differences between the two. Further tests such as Scanning Electron Microscopy (SEM) are also available if needed to investigate other parameters such as microscopic structure, surface topography, and elemental composition at high resolution. Since 2017, students were able to handle 90 analysis tests conducted over 67 samples. Only 6