

## **Indirect techniques in nuclear astrophysics: A review**

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In this review, we discuss the present status of three indirect techniques that are used to determine reaction rates for stellar burning processes, Asymptotic Normalization Coefficients, the Trojan Horse Method, and Coulomb Dissociation. A comprehensive review of the theory behind each of these techniques is presented. This is followed by an overview of the experiments that have been carried out using these indirect approaches.

The techniques are now well established tools in nuclear astrophysics. As rare isotope beam facilities are developed around the world, indirect methods will play a major role in determining rates for reactions that occur on short lived isotopes. The work that has been done to date with rare-isotope beams represents only the first steps in this effort. Beam intensities and beam species will expand dramatically by the end of this decade opening up many new opportunities to further utilize indirect tools to learn about the nuclear reactions that drive the cosmos.

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