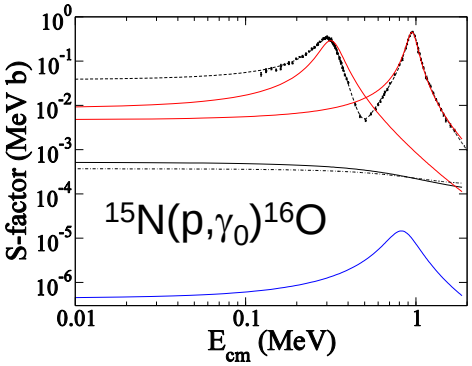
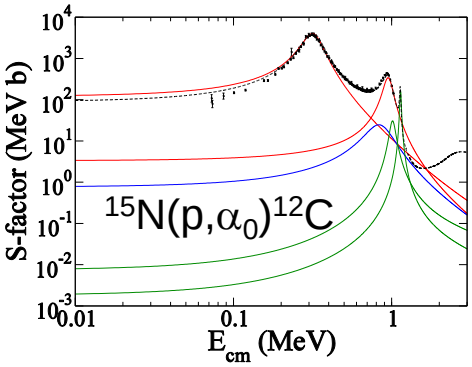
Joint Institute for Nuclear Astrophysics

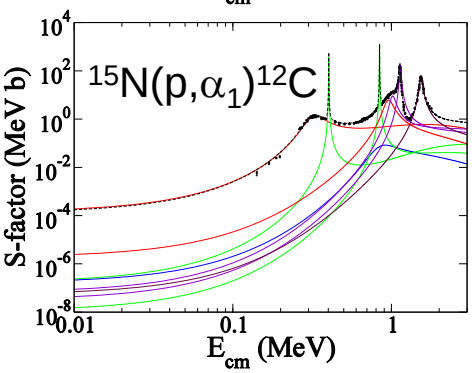
JINA *R*-matrix projects

Calculation of the reaction rates for proton and α induced reactions on light nuclei often requires the characterization of cross sections which are dominated by broad overlapping resonances. In these cases, *R*-matrix theory has proved to be a powerful analysis tool. Because of the complex mathematical implementation, the JINA collaboration has developed open source *R*-matrix codes to facilitate analysis. Example fits from three recently published papers are shown. Other related publications from the last year not shown include: PRC **85**, 045804 (2012), PRC **85**, 038801 (2012), PRC **85**, 065810 (2012). Several other analyses using the R-matrix code are in progress.

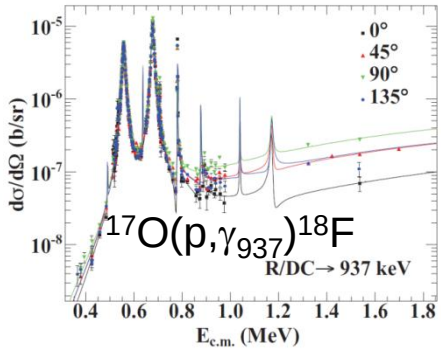
Fits for reactions which populate the ^{16}O compound nucleus

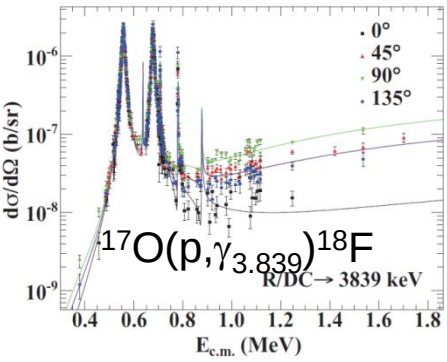


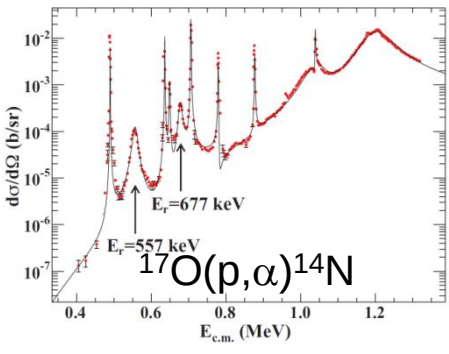




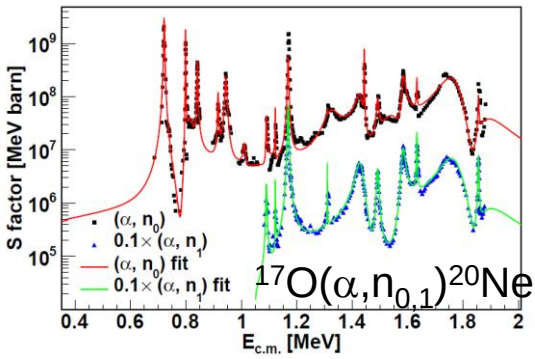
Fits for reactions which populate the ^{18}F compound nucleus







Fits for reactions which populate the ^{21}Ne compound nucleus



PRC submitted (2013)

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PRC **87**, 015802 (2013) PRC **86**, 055801 (2012)