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

 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

 Contact:
 Richard deBoer
 University of Notre Dame
 rdeboer1@nd.edu

 Researchers:
 Richard deBoer (ND)
 Andreas Best (ND)
 Ethan Uberseder (ND)
 Antonios Kontos (MSU)
 Joachim Görres (ND)
 Gianluca Imbriani (INFN)
 Michael Wiescher (ND)