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On the similarity of Breit-Pauli and Dirac R-matrix collision strengths for iron peak elements: an Fe^{14+} case study C.P. BALLANCE, Department of Physics, Rollins College, Winter Park, FL 32789, K.A. BERRINGTON, School of Science & Mathematics, Sheffield Hallam University, Sheffield S1 1WB, UK., D.C. GRIFFIN, N.R. BADNELL, Department of Physics, University of Strathclyde, Glasgow G4 0NG, UK — In calculating collision strengths and excitation rates for electron impact on moderately ionized iron peak elements, an issue arises over whether the Breit-Pauli R-matrix method is sufficiently accurate as compared with the Dirac R-matrix method. We test this for Fe^{14+} by removing as far as possible any variation in algorithmic features, such as the energy mesh and target state expansion used, as opposed to genuine differences between the two approaches. We find the average difference between the Breit-Pauli and Dirac R-matrix effective collision strengths is only 6%, which confirms the hypothesis that if one gets the Dirac and Breit-Pauli target states close, and resolves the resonances adequately (we use up to 384 101 points), then the Dirac and Breit-Pauli collision strengths are in good agreement.

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