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**Effects of Correlations in Medium and High Energy Scattering Off Nuclei** MASSIMILIANO ALVIOLI, Department of Physics, Penn State University, CLAUDIO CIOFI DEGLI ATTI, LEONID KAPTARI, Department of Physics, University of Perugia and INFN, HIKO MORITA, Sapporo Gakuin University, Japan — The linked cluster expansion technique, introduced for the calculation of ground-state properties of nuclear systems, has been applied to the calculation of diagonal and non diagonal one- and two-body density matrices of nuclei ranging from  ${}^3\text{He}$  to  ${}^{208}\text{Pb}$ . The results for few-body systems agree with Variational Monte Carlo results. Diagonal and non-diagonal density matrices appear in exclusive medium energy processes as  $A(e, e'2N)X$  reactions, as well as correlation corrections in many high energy hadronic scattering processes, usually treated within the single-density approximation of Glauber theory. The realistic two-body densities have been used to calculate  $(e, e'p)$  and  $(e, e'pp)$  processes off few-nucleon systems and complex nuclei, the p-p and p-n momentum distributions in medium-weight nuclei, the total elastic, inelastic and quasi-elastic hadron-nucleus cross sections at high energies, finding relevant effects from short range and tensor correlations.

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