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^{7}Be$(p,\gamma)^8$B S-factor from *ab initio* wave functions: II. S-factor calculation CARLOS BERTULANI, University of Arizona, PETR NAVRATIL, Lawrence Livermore National Laboratory, ETIENNE CAURIER, IRES CNRS Strasbourg — The S-factors (S_{17} for the radiative capture reaction p+^{7}Be$\rightarrow^8$B+γ are calculated using *ab initio* no-core shell model (NCSM) overlap integrals with corrected asymptotics. Momentum distributions for the reactions ^{8}B (41 MeV/nucleon) + ^{9}Be$\rightarrow^7$Be+X and ^{8}B (936 MeV/nucleon) + ^{12}C$\rightarrow^7$Be+X have also been studied. A good description of both the experimental data of both the astrophysical S-factor and of the momentum distributions over a wide energy/momentum spectrum is obtained. The spectroscopic factors obtained with the NCSM wavefunctions are also shown to be in good agreement with the experimental data. Our studies support a value of S_{17} in agreement with recent Coulomb dissociation experiments, but which are slightly below the averaged values from direct capture experiments [1]. [1] W.C. Haxton, P.D. Parker, C.E. Rolfs, archive preprint nucl- th/0501020.

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