

Abstract Submitted  
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**Ettore Majorana, Ugo Fano and Autoionization** ENNIO ARIMONDO, University of Pisa, CHARLES W. CLARK, Joint Quantum Institute, National Institute of Standards and Technology and University of Maryland, WILLIAM C. MARTIN, National Institute of Standards and Technology — In his brief career, Ettore Majorana posed some questions that remain of compelling interest today, such as the nature of the neutrino. Less remembered now is his virtuosity as an atomic theorist. His first published paper (1928) dealt successfully with complex atomic structures like those of Gd and U, using Fermi's statistical model which was only a few months old at the time. In the early 1930s he solved two outstanding problems of atomic spectroscopy, correctly interpreting them as involving multiply-excited discrete states of atoms that were embedded in single-electron continua, and thus first identifying the phenomenon of autoionization in atomic spectra.<sup>1</sup> His unpublished notebooks<sup>2</sup> show that he grasped this phenomenon at a level of detail comparable to that of modern theory, which derives from the independent work of Ugo Fano.<sup>3</sup> We review Majorana's work on this subject and show how it still guides present understanding. <sup>1</sup>E. Arimondo, C. W. Clark and W. C. Martin, *Rev. Mod. Phys.* **82**, 1947 (2010) <sup>2</sup>E. Di Grezia and S. Esposito, *Found. Phys.* **38**, 228 (2008) <sup>3</sup>U. Fano, *Nuovo Cimento* **12**, 154 (1935); *Phys. Rev.* **124**, 1866 (1961); *J. Res. Natl. Inst. Stand. Technol.* **110**, 583 (2005)

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