Number 27 July 4, 1977

Citation Classics

Fano, Ugo. Effects of configuration interaction on intensities and phase shifts. *Physical Review* 124(6):1866-78, 15 December 1961.

The interference of a discrete auto-ionized state with a continuum gives rise to characteristically asymmetric peaks in excitation spectra. The earlier qualitative interpretation of this phenomenon is extended and revised. A theoretical formula is fitted to the shape of the $2s2p\,^1P$ resonance of He ob served in the inelastic scattering of electrons. The theory can also give the position and intensity shifts produced in a Rydberg series of discrete levels by interaction with a level of another configuration. [The *SCI®* indicates that this paper was cited 647 times in the period 1961-1975.]

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January 25, 1977

"The paper appears to owe its success to accidental circumstances, such as the timing of its publication and some successful features of its formulation. The timing coincided with a rapid expansion of atomic and condensed matter spectroscopy, both optical and collisional. The formulation drew attention to the generality of the ingredients of the phenomena under consideration. In fact, however, the paper was a rehash of work done 25 years earlier and its context still needs extension and clarification.

"It is well known that an atomic system can absorb only discrete amounts of energy as long as these amounts do not suffice to break it up; one observes then a line spectrum. A continuous spectrum is observed, instead, when the energy absorption can achieve ionization or dissociation of the system. Conspicuous discrete structures do nevertheless occur in continuous spectra when the absorbed energy runs initially into blind alleys thus allowing only a delayed break-up; the deeper the blind alley, the sharper is its influence. These spectral structures thus furnish evidence on energy migration within the absorbing system.

"In January, 1935, Emilio Segré gave me some spectroscopy papers by H.A. Beutler as a fruitful subject of study. The Beutler spectra showed unusual intensity profiles which struck me as reflecting interferences between alternative mechanisms of excitation. Fermi then taught me sequentially within a few days how to formulate my interpretation theoretically; a paper was sent to the *Nuovo Cimento* quickly and I dropped the matter. I remained, however, sensitized to evidences of analogous phenomena, noticing, e.g., how they emerged through the influence of surface waves on the spectra of diffraction gratings.

"Late in 1960, R.L. Platzman called to my attention a strikingly asymmetric line profile in an unpublished spectrum of energy transfers in electron collisions by Lassettre and co-workers. This spectrum appeared analogous to those I had interpreted in 1935. My reply to Platzman provided the opportunity for a modernized formulation of the analytical treatment. He urged me to publish the new derivation; this I did, complementing it with illustrations and with fragmentary extensions and interpretations, with unexpected success. The amount of effort spent on this paper was, however, far larger than for its distant predecessor.

"By 1965 discrete structures had proved ubiquitous in the vacuum ultraviolet spectra of most materials. The theoretical framework I had utilized appeared, however, too restrictive. Only for isolated, sharp spectral features can we extract from spectral data well-defined quantitative information on the mechanisms that produce them. That is, we do well only when excitation energy can flow and ebb from a single blind channel before being dissipated away. Extensive efforts have been devoted to extending this analysis, over the years, by many physicists besides myself, but their results have remained fragmentary."