This paper is concerned with absorption (emission) X-ray spectra near the Fermi level threshold. The transition creates (destroys) a hole in the atomic core, which yields a transient one-body scattering potential on the conduction electrons. The latter must rearrange to meet this new configuration—hence singularities near threshold. The problem is solved exactly using Green's functions in a time representation. [The SCOP indicates that this paper has been cited in over 485 publications since 1969.]

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"Theoretical research is supposed to proceed in a logical way: in a clearly set problem, more and more elaborate approaches are expected to give better and better answers. My paper with Cyrano de Dominicis on threshold singularities in X-ray spectra is a typical counterexample in which significant results emerged rather fortuitously through a very devious route. Neither of us was concerned with X-rays. In the fall of 1967, I noticed a paper by G. Mahan, pointing out the existence of logarithmic singularities in metallic spectra at the Fermi level threshold. At that time, I was interested in one-dimensional conductors, and I had been striving my way into the summation of fancy 'parquet' diagrams introduced by the Soviet core, which yields a transient one-body scattering potential on the conduction electrons. The latter must rearrange to meet this new configuration—hence singularities near threshold. The problem is solved exactly using Green's functions in a time representation. [The SCOP indicates that this paper has been cited in over 485 publications since 1969.]