TABLE 2. Pair cross-sections of 1.119 MeV gamma rays (millibarns per atom)

Element	Experimental Value	Theoretical Value (Overbo *et al* 1968)
Cu	1 42±0 09	1 02
Zr	2 95±0.18	2.16
Rh	3 90 ±0 23	2 79
Sn	5.00±0.3	3.43
Ta	11.40±0.6	6.3
Pt	13.20±0 7	6.92
Au	13 40±0 7	7.0
Pb	14.80±0.7	7.24

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Some comments on exact partition function of Ising model in Magnetism in one, two and three dimensions in non-zero field

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In a recent paper on Ising model, Das (1970) comes to the surprising conclusion that Onsager's (1944) and Yang's (1952) results of two dimensional Ising model are not reliable ! A closer look at the paper reveals that Das's approach to the problem is basically erroneous. The basic fallacy in

his approach is that he considers *finite crystals*. The partition function for a finite crystal is an *analytic function* of temperature and as such its derivatives will net show discontinuity (Onsager 1944, Wannier 1959). Hence the author does not find any phase transition in two or three dimensional finite crystals. Mere imposition of periodic boundary conditions will not ensure that the crystal is infinite. Periodic boundary conditions only eliminate the surface effects. The correct way to calculate exactly the partition function would be to write down the partition function and then let the number of atoms, number of rows of atoms or number of layers of atoms (depending on whether one is interested in one, two or three dimensions) go to infinity, after which only, one should try to derive the thermodynamic properties from the partition function. This limiting process is very complicated which requires special mathematical methods such as the matrix method or the combinatorial methods in the case of two and three dimensional crystals. The author is wrong in assuming that one can obtain the behaviour of one or two dimensional crystals from that of three dimensional crystals, because the three demensional problem is the most complicated one and, therefore, as yet unsolved. There is absolutely no ground to believe that the behaviour of one, two and three dimensional crystals are similar.

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