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E. R. Davidson: Reduced Density Matrices in Quantum Chemistry.
London: Academic Press 1976. 135 pp., price: £9.35

Reduced density matrices turned out to be very useful in Quantum Chemistry even if the hope is now given up that one can eliminate the wave function completely in favour of a theory in terms of one- and two-particle density matrices only. A complete account of the theory of reduced density matrices has so far been lacking. E. R. Davidson, who has contributed a lot to this field, has succeeded in writing a sufficiently short but nevertheless quite comprehensive text on both the mathematical and physical properties of one- and two-particle density matrices. Many numerical examples are given to illustrate the general ideas. The *n*-representability problem does not play a central role but the important points are outlined. Maybe some quasivariational approaches with "almost" *n*-representable 2-matrices, e.g. by Garrod, should have deserved more comments, especially the application to extended systems. Also the density functional formalism could have been discussed in more detail, e.g. in the light of the recent work of Primas. The list of references is quite extensive, unfortunately only very few of them are referred to in the text, so the reader who wants to learn about history and priorities will not be satisfied. This does not prevent the book from being good source of information.

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