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" $A$ great book covering the theoretical aspects of optical and luminescence properties of transition metals and lanthanides. Starting with the bachelor-level quantum physics to describe free transition metal and lanthanide ions, it covers the basics of crystal field theory, group theory, and the vibrating crystalline environment. The authors manage to keep the book at the graduate student level, making it accessible to the non-theorist and very well-suited for the interpretation and analysis of experimental data."

## Prof. Pieter Dorenbos Delft University of Technology, The Netherlands

This book describes in detail the main concepts of theoretical spectroscopy of transition metal and rare earth ions. It shows how the energy levels of different electron configurations are formed and calculated for the ions in a free state and in crystals, how group theory can help in solving main spectroscopic problems, and how the modern DFT-based methods of calculations of electronic structure can be combined with the semi-empirical crystal field models. The style of presentation makes the book helpful for a wide audience ranging from graduate students to experienced researchers.


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