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# Resistivity and Induced Polarization

Theory and Applications to the Near-Surface Earth

**Andrew Binley**

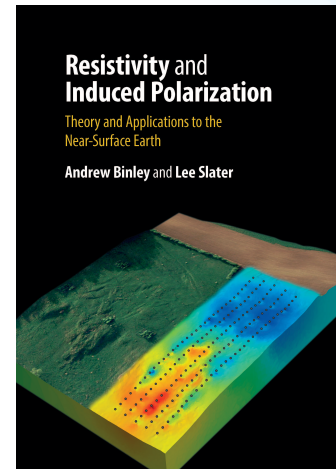
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Resistivity and induced polarization methods are used for a wide range of near-surface applications, including hydrogeology, civil engineering and archaeology, as well as emerging applications in the agricultural and plant sciences. This comprehensive reference text covers both theory and practice of resistivity and induced polarization methods, demonstrating how to measure, model and interpret data in both the laboratory and the field. Marking the 100 year anniversary of the seminal work of Conrad Schlumberger (1920), the book covers historical development of electrical geophysics, electrical properties of geological materials, instrumentation, acquisition and modelling, and includes case studies that capture applications to societally relevant problems. The book is also supported by a full suite of forward and inverse modelling tools, allowing the reader to apply the techniques to a wide range of applications using digital datasets provided online. This is a valuable reference for graduate students, researchers and practitioners interested in near-surface geophysics.

Preface; Acknowledgements; List of symbols; 1. Introduction; 2. Electrical properties of the near surface Earth; 3. Instrumentation and laboratory measurements; 4. Field configuration and acquisition; 5. Forward and inverse modelling; 6. Case studies; 7. Future developments; Appendix A. Modelling tools; Index.



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'Binley and Slater are two of the best electrical geophysicists in the world, and together have written a comprehensive, accessible textbook for anyone interested in electrical methods. By including a history of the methods, open-source software, and sections on theory, instrumentation, forward and inverse modelling, and applications, they've produced a 'one-stop shop' for all things electrical. This book starts with a primer on the most fundamental mathematics and builds up from there to topics outlining the state of the science, including helpful figures and sidebar information along the way. I strongly recommend this book to any student or practitioner interested in learning more about how to apply electrical geophysical techniques to shallow-Earth problems, and look forward to sharing it with my research students.'

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