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**Dynamic Brain Imaging: Multi-Modal  
Methods and In Vivo Applications (Methods  
in Molecular Biology, Vol. 489)**

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## BOOK REVIEW

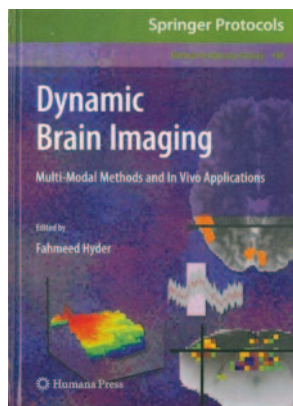
## Dynamic Brain Imaging: Multi-Modal Methods and In Vivo Applications (Methods in Molecular Biology, Vol. 489)

F. Hyder, ed. Humana Press; 2009, 366 pages, 107 illustrations, \$99.00.

The latest addition to a long list of publications in the *Methods in Molecular Biology* series is entitled *Dynamic Brain Imaging: Multi-Modal Methods and In Vivo Applications*. This title is edited by Dr. Fahmeed Hyder, who has contributed extensively to the field of functional neuroimaging. The title follows a similar review of *Dynamic Brain Imaging*, with an emphasis on methods and protocols. The stated goal of this book is to “. . . help users learn to decipher the dynamic imaging data.”

The book is divided into 5 sections that allow the reader to explore a varying array of methodologies to image brain function. The topics covered include an introductory section nicely reviewing the field as a whole; 4 chapters covering various forms of optical imaging; a section on electrophysiology, which includes a chapter on magnetoencephalography; a section on functional MR imaging; and, last, a mixed section reviewing popular methods such as MR spectroscopy along with less familiar methods such as Lorentz effect imaging that will likely be a new and exciting read for most. All chapters

are written by leaders in their respective fields, though the content is highly variable. This variability seemed to stem from the authors having an unclear understanding of the intended audience. Well-written chapters provided a brief review of the literature; a thorough explanation of the methods being described; and a summary of the significance of the findings to date, with predictions regarding the significance of the methods be-



ing discussed as well as future directions. Conversely, some chapters seemed to consist primarily of recycled material from a previous grant application or another manuscript, assumed readers were up to date, and lacked the depth of explanation that is to be expected of such a review. Conspicuously missing from the section on optical imaging was a discussion of near infrared spectroscopy, despite being mentioned briefly in the first introductory chapter. Overall, it should be stated that most chapters were well written and accomplished their intended goal of educating the reader about the various dynamic imaging methodologies at various stages of development.

In reading the Editor's preface, I was not entirely clear about the intended audience of this compilation of methods, though I imagined a diverse readership that included neuroscientists, physiologists, physicists, biomedical engineers, clinicians, and students of all ages and stages. In retrospect, I believe this broad audience is appropriate, though more technically advanced readers may be frustrated by the lack of detailed methods in some chapters, whereas the weekend hobbyists may flip past multiple pages of equations or scripts. That no one group of readers will be completely satisfied suggests that the Editor nicely balanced the breadth and depth of this highly technical volume.

A requirement for any review of imaging methodologies is an abundant supply of illustrations. This hardcover volume provides ample, high-quality, gray-scale diagrams of imaging methods and data. Statistical parametric maps are presented in the text in gray-scale, though the reader is referred to a central section of the text consisting of glossy full-color renderings of the same maps in the text. Although it would have been preferable to integrate the color diagrams into the text, this option likely provided a significant cost savings that the reader will appreciate. Last, a topical index is comprehensive and well organized, allowing the reader to easily find all page numbers for a particular topic.

In summary, this review of multimodal in vivo brain imaging methods provides a nice compilation of manuscripts describing a wide assortment of techniques to image brain function at multiple levels. Despite the inconsistent depth of coverage across the various methods reviewed, most readers are unlikely to be familiar with all of the techniques and will thus appreciate the contribution made by this title and hopefully apply this new knowledge to existing work.

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