

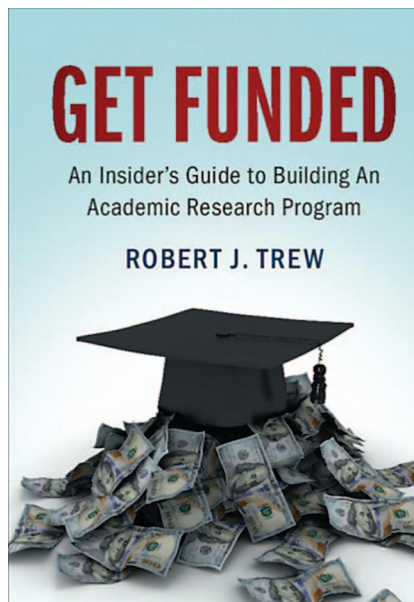
Book/Software Reviews

A Guide to Academic Funding

■ **Alfy Riddle**

After reading *Get Funded*, I was tempted to make my review extremely short: "Buy this book." But, after some thought, I realized I should qualify that recommendation. If you are a graduate student thinking about moving into a faculty research position, you should buy this book and read it cover to cover. If you are a new faculty member looking for funding, you should buy this book and read it cover to cover. If you are a university administrator hiring a new faculty member, you should buy this book and give it to whomever you hire because you want that person to be successful. Teaching students about research funding is now more critical to our microwave field than ever before, as most funding and hiring opportunities are in software or digital design.

In the interest of full disclosure, I should say that my Ph.D. degree was funded by a U.S. Office of Naval Research fellowship, that I have worked in industry for over 30 years as well as done adjunct faculty teaching, and that I have been a member of several Small



Get Funded

by *Robert J. Trew*
Cambridge University Press, 2017
ISBN 978-1-107-65719-9
290 pages, US\$32.99

Business Innovative Research grant committees. I should also say that, while author Bob Trew was my college advisor, I requested a review copy of this book before I knew the author's name. So I have not received any compensation for this review other than a copy of

the book. However, I am seriously considering buying Bob a beer as thanks for writing something so useful.

I know what it is like to graduate with a Ph.D. degree and contemplate a life in academia. As my wife reminds me, I promised her that, after five years in industry, we would move from California back to our home state and I would pursue a teaching career. I can easily put myself in the position of someone just graduating with a Ph.D. degree and looking for a faculty position. Obtaining a doctorate is very different from establishing a research program at a university.

This book is easy to read and very informative. While many books try to convince people of something, *Get Funded* reflects the author's career being on both sides of the fence and offers honest advice concerning what young academics need to know to be successful. The book provides practical advice, food for thought, and frank discussions to help open eyes.

Get Funded follows a logical progression beginning with the history of U.S. funding and then covering being recruited into a faculty position, obtaining funding, writing proposals, and understanding what to watch out for. Still, each chapter stands on its own. You can pick and choose to read

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the chapter most critical to your own next step.

The longest chapter in the book is on proposal writing. This is where Prof. Trew's experience is most useful, as he has served in both roles: funding and writing proposals. As he notes, writing a proposal that is easy to evaluate and answers key questions is

more important than enthusiastically explaining the minute details of what you believe will change the world.

Finally, *Get Funded* lays it all out for your evaluation. Funding can come from government or industry, and each has its restrictions. Building a research group is very different from doing the individual research that got you a

Ph.D. degree. You will need to market your research and become an extrovert. Your Ph.D. degree did not train you for a life in academia. You will have to develop funding ideas, meet funding people, and guide students; and, at the most fundamental level, you are on your own.

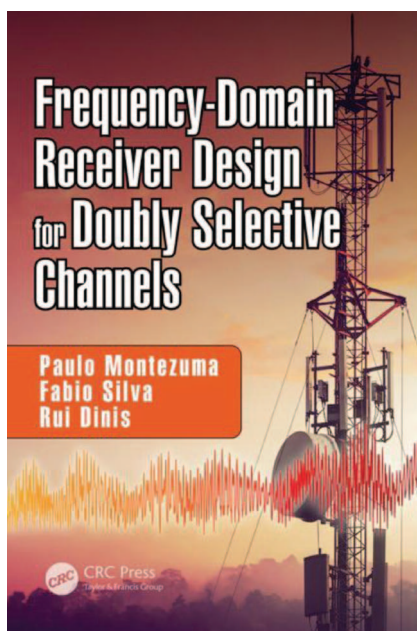
Did I mention, "Buy this book"?

Frequency-Selective and Time-Selective Fading

■ James Chu

Dr. Paulo Montezuma is a professor with the Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa (FCT-UNL), Portugal, and also a researcher at the Instituto de Telecomunicações. Dr. Fabio Silva is an engineer with the Portuguese telecommunications regulator Anacom and a researcher in the broadband wireless communication area. Dr. Rui Dinis is an associate professor with FCT-UNL and also a researcher in the broadband wireless communication area, as well as an editor of *IEEE Transactions on Communications* and other publications.

Chapter 1 of *Frequency-Domain Receiver Design for Doubly Selective Channels* explains the book's focus on frequency-selective and time-selective fading in broadband wireless communication (jointly referred to as *doubly selective*). Due to such fading, the received signal is time varying and may be highly attenuated, resulting in severe impairment of wireless communication systems. This book is dedicated to the study of the effective detection of broadband wireless



Frequency-Domain Receiver Design for Doubly Selective Channels
by Paulo Montezuma, Fabio Silva,
and Rui Dinis
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US\$49.96

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transmission as well as problems and solutions for digital transmission over severely time-dispersive channels that are also time varying.

Chapter 2, "Fading," explains both large- and small-scale fading. Large-scale fading is based on path loss and shadowing, while small-scale fading is based on multipath fading and Doppler spread. This chapter is devoted to a review of the mathematical models representing the physical channels and introduces time-varying frequency-selective channels. It also discusses how multipath propagation combined with the Doppler effects due to mobility can lead to drastic and unpredictable fluctuation of the received signal's envelope.

Chapter 3, "Block Transmission Techniques," begins with a brief introduction to the techniques of orthogonal frequency-division multiplexing (OFDM) and single carrier with frequency-domain equalization (SC-FDE) and covers several aspects of analytical characterization and the relevant properties of each modulation type. This chapter also explains feed-forward and feedback operations. The authors point out that the FDE receiver offers much better performance than noniterative methods, which are based on "blockwise reliabilities" (hard decisions) and "symbol reliabilities" (soft decisions). The soft decision improves the bit error rate performance.

(continued on page 103)