



The Physics of Coronary Blood Flow (Biological and Medical Physics, Biomedical Engineering)

By M. Zamir

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Editorial Review

Review

From the reviews:

"This is an in-depth study of the dynamics and physics of coronary blood flow . . . The author who is an engineer/mathematician spares no details and is very, very thorough in his exposition. . . I would like to commend the author for providing many helpful figures and flow charts to ease the transition from concepts to mathematics and beyond. . . you will enjoy it for its content and retain it as a valuable reference." (H. W. Vayo, Mathematical Reviews, Issue 2006 g)

"This book is devoted to the study of a very complex subject – the dynamics and physics of coronary blood flow – which the author defines as the blood flow to the heart for its own metabolic needs. . . This book deserves high praise. The clarity of its writing and the sequence and demonstrated mastery of the contents make it 'an easy to read' and 'an easy to understand' fascinating text. I strongly recommend it to all researchers in the field and to all libraries." (Harold Ramkissoon, Zentralblatt MATH, Vol. 1121 (23), 2007)

From the Back Cover

Coronary blood flow is blood flow to the heart for its own metabolic needs. In the most common form of heart disease there is a disruption in this flow because of obstructive disease in the vessels that carry the flow. The subject of coronary blood flow is therefore associated mostly with the pathophysiology of this disease, rarely with dynamics or physics. Yet, the system responsible for coronary blood flow, namely the "coronary circulation," is a highly sophisticated *dynamical* system in which the dynamics and physics of the flow are as important as the integrity of the conducting vessels. While an obstruction in the conducting vessels is a fairly obvious and clearly visible cause of disruption in coronary blood flow, any discord in the complex dynamics of the system can cause an equally grave, though less conspicuous, disruption in the flow.

This book is devoted specifically to the *dynamics and physics* of coronary blood flow. While relevance to the clinical and pathophysiological issues is clearly maintained, the book approaches the subject from a biomedical engineering point of view. With this perspective, ***the Physics of Coronary Blood Flow*** complements other treatments of the subject that focus largely on the clinical and pathophysiological issues.

The author, originally trained in fluid dynamics, has been teaching and working on the dynamics of blood flow in general and coronary blood flow in particular for the past thirty years and has produced a book that will appeal to physicians, physicists and engineers.

About the Author

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