

1. Record Nr.	UNINA9910544869603321
Autore	Modarres-Sadeghi Yahya
Titolo	Introduction to Fluid-Structure Interactions // by Yahya Modarres-Sadeghi
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	9783030858841 9783030858827
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (238 pages)
Collana	Physics and Astronomy Series
Disciplina	624.171
Soggetti	Mechanics, Applied Solids Fluid mechanics Civil engineering Solid Mechanics Engineering Fluid Dynamics Civil Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Flow around a fixed cylinder -- Vibrations of One and Two Degree-of-Freedom Systems -- Vortex-Induced Vibrations -- Galloping and Flutter -- Vibrations of continuous structures -- A Flexible Pipe Conveying Fluid -- A flexible cylinder in axial flow -- Vortex-Induced Vibration of Flexible Beams.
Sommario/riassunto	This timely book introduces the subject of Fluid-Structure Interactions (FSI) to students and professionals. It discusses the major ideas in FSI with the goal of providing the fundamental understanding to the readers who possess limited or no understanding of the subject. The author presents the physics of the problem, rather than focusing on the methods, and discusses the essential methods of analysis. The principle goal of Introduction to Fluid-Structure Interactions is impart to students and practitioner a physical understanding of major topics in fluid-structure interactions: axial flow problems (when the direction of the flow is parallel to the long axis of the structure) and crossflow

problems (when the direction of the flow is normal to the long axis of the structure). Facilitating readers' understanding of both categories, starting with simple 1 DOF systems and continuing to more complicated continuous flexible structures, Introduction to Fluid-Structure Interactions, is ideal for graduate students and practitioners interested in this critical field. Stands as a unique introductory volume to study Fluid-Structure Interactions (FSI); Covers aspects of FSI relevant to Fluid Mechanics, Wind Energy, Ocean Engineering, and Biomedical research; Integrates most recent findings from research on FSI; Emphasizes the physics behind the phenomena in detail; Maximizes readers understanding by beginning with fundamental concepts and developing focus to more complex systems.
