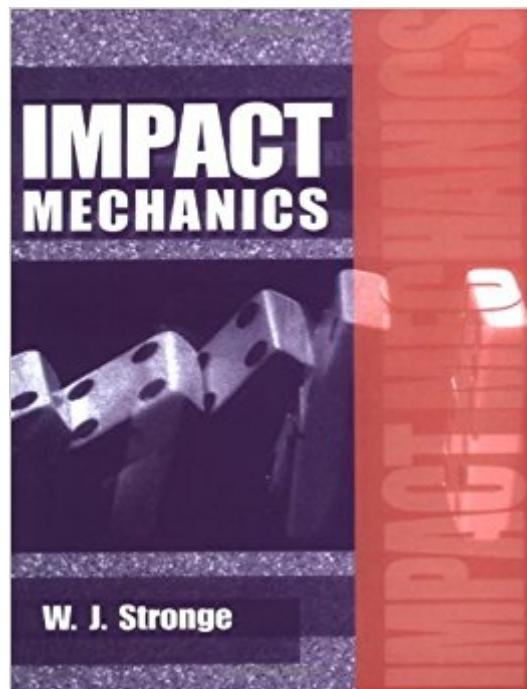


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Impact Mechanics



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Impact mechanics is concerned with the reaction forces that develop during a collision and the dynamic response of structures to these reaction forces. The subject has a wide range of engineering applications, from designing sports equipment to improving the crashworthiness of automobiles. This book develops several different methodologies for analysing collisions between structures. These range from rigid body theory for structures that are stiff and compact, to vibration and wave analyses for flexible structures. The emphasis is on low-speed impact where damage is local to the small region of contact between the colliding bodies. The analytical methods presented give results that are more robust or less sensitive to initial conditions than have been achieved hitherto. As a text, Impact Mechanics builds upon foundation courses in dynamics and strength of materials. It includes numerous industrially relevant examples and end-of-chapter homework problems drawn from industry and sports. Practising engineers will also find the methods presented in this book useful in calculating the response of a mechanical system to impact.

Book Information

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This text develops several methodologies for analysing collisions between structures, ranging from rigid body theory for structures that are stiff and compact, to vibration and wave analyses for flexible structures. The emphasis is on low-speed impact where damage is local to the small region of contact between the colliding bodies.

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