

1. Record Nr.	UNINA9910556886903321
Autore	Kim In-Ju (Writer on falls (Accidents))
Titolo	Engineering Metrology for Pedestrian Falls Prevention and Protection : Theories to Applications for Designing Safer Shoes and Floors / / by In-Ju Kim
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	9783030957469 9783030957452
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (546 pages)
Collana	Physics and Astronomy Series
Disciplina	685.31
Soggetti	Measurement Measuring instruments Atoms Metrology Tribology Building materials Measurement Science and Instrumentation Metrology and Fundamental Constants Wood, fabric, and textiles
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- A New Research Challenge on Slip Resistance Measurements -- Basic Principles of Tribology -- Frictional Behaviours and Mechanisms -- Wear Behaviours and Mechanisms -- Development of Friction and Wear Models for the Shoe-Floor-Environment -- Observation of the Floor Surface Changes in the Pedestrian Slip Resistance Measurements -- Engineering Assessment of Floors/Walkways: Practice for the Prevention of Pedestrian Fall Incidence -- Development of a Tribology Model for Quantifying Slip Resistance Characteristics: basic Concepts, Theories, Experiments, and Validations -- Tribological Assessments of Shoe Surfaces: Identification of Wear Mechanisms and Applications for Slip Resistance Assessments - Case Study No. 1 -- Tribological Assessments of Shoe Surfaces:

Identification of Wear Mechanisms and Applications for Slip Resistance Assessments - Case Study No. 2 -- Tribological Assessments of Shoe Surfaces: Identification of Wear Mechanisms and Applications for Slip Resistance Assessments - Case Study No. 3 -- Observation on Wear Developments of Floor/Walkway Surfaces: Applications to Pedestrian Fall Safety Assessments - Case Study No. 1 Observation on Wear Developments of Floor/Walkway Surfaces: Applications to Pedestrian Fall Safety Assessments - Case Study No. 2 -- Observation on Wear Developments of Floor/Walkway Surfaces: Applications to Pedestrian Fall Safety Assessments - Case Study No. 3 -- Future Works, Recommendations, and Conclusions.

Sommario/riassunto

This book explains how to improve the validity, reliability, and repeatability of slip resistance assessments amongst a range of shoes, floors, and environments from an engineering metrology viewpoint—covering theoretical and experimental aspects of slip resistance mechanics and mechanisms. Pedestrian falls resulting from slips or falls are one of the foremost causes of fatal and non-fatal injuries that limit people's functionality. There have been prolonged efforts globally to identify and understand their main causes and reduce their frequency and severity. This book deals with large volumes of information on tribological characteristics such as friction and wear behaviours of the shoes and floors and their interactive impacts on slip resistance performances. Readers are introduced to theoretical concepts and models and collected evidence on slip resistance properties amongst a range of shoe and floor types and materials under various ambulatory settings. These approaches can be used to develop secure design strategies against fall incidents and provide a great step forward to build safer shoes, floors, and walking/working environments for industries and communities around the world. The book includes many case studies.
