



## Numerical Analysis of Blade-Formation Interactions in Excavation

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Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | A Finite Element Approach | The efficiency and costs of mining operations greatly depend on the efficient design and use of excavators. The performance of these capital-intensive excavators requires thorough understanding of the physical and design factors that affect the formation-cutting tool interaction process. The current body of knowledge, based on experimental and analytical methods, provides limited understanding of these factors, which limits the accurate design and performance of excavators. The soil constitutive equations used in most of the available finite element (FE) models also fail to adequately capture the elastic and plastic behaviors of soil formations. This book reviews some of the models of cutting blade-formation, with their merits and limitations. The book also presents a research initiative which uses FE techniques to model the soil-tool interaction phenomenon, with appropriate focus on the behavior of soils during excavation. This is a pioneering effort in developing FE model of the soil-dozzer blade interaction using the modified Cam Clay elasto-plastic law. | Format: Paperback | Language/Sprache: english | 108 pp.



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