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Marcus Aßmus

Structural Mechanics of Anti-Sandwiches An Introduction



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An Introduction

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Preface

Cutting-edge engineering applications can also disclose new problems. Especially with structural mechanics, problems arise since computations that follow classical approaches often fail, at least when basic assumptions of underlying theories are violated. Therefore, advanced recipes are needed. This is also the case to what is known as Anti-Sandwich. Due to the slenderness of such structures, they can be assigned to the group of thin-walled structural elements. Anti-Sandwiches comprise multiple layers that allow a classification to the genus of composite structures. However, the discontinuity of mechanical properties in transverse direction is extraordinarily strong. At the same time, the structural thickness of the layers differs widely. Hereby, we leave the framework of classical composite structures. Present elaboration is therefore dedicated to the mechanics of such a species.

This contribution is based on the dissertation of the author. To open the topic to a wider readership, this work was translated and is presented in compact form here. The author thanks Prof. Holm Altenbach for the inclusion in his team and scientific accompaniment during the last three years. The freedom to set up priorities independently was a privilege. Apl. Prof. Konstantin Naumenko is acknowledged for both, confusion and clarification. Obviously not to the same extent.

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