

2018年3月16日

## 日本材料学会九州支部特別講演会のお知らせ

Prof. Dr. Esteban Broitman が国際会議 PCM2018（北九州）で来日されるのに合わせ、大分大学にて特別講演会を開催致します。皆様、奮ってご参加ください。

記

日時：平成30年4月9日（月）10:40～12:00（時間は若干変更する場合があります）

場所：大分大学理工学部 理工9号館（エネルギー棟）1階多目的研修室

講演者：Prof. Dr. Esteban Broitman

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講演題目：Mechanical Properties of Thin Films by Nanoindentation

Nowadays, nanoindentation has become a routinely technique for the mechanical characterization of thin films and small-scale volumes. Thanks to the development of friendly analysis software and advances in high sensitive instrumentation, it feels like the measurement and calculation of hardness and elastic modulus can be easily done by just *“the pushing of one button.”* However, the consequences of easy procedures have led many researchers to multiple publications with erroneous data.

Recently, we have reviewed the nanoindentation hardness of materials at macro, micro, and nanoscale (E. Broitman, Tribology Letters, vol. 65, 2017, p. 23). Some misconceptions in the nanoindentation technique were highlighted, and solutions to errors were proposed. In this talk I will review the theoretical frame used by the nanoindentation technique. Some typical mistakes in the measurement and data analysis during the nanoindentation of thin films will be critically reviewed, and the possible ways to correct them will be discussed. The origins of the aforementioned mistakes will be elucidated from the lack of understanding on contacts mechanics theory, the limits and validation of the Oliver and Pharr's method, and preconceptions transmitted from generation to generation of nanoindenter users. At the whole, it will be stressed that it is not enough to know *“how to push the button”* in order to measure the nanoscale mechanical properties of coatings.

以上

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