

DIRECT METHODS: METHODOLOGICAL PROGRESS AND ENGINEERING APPLICATIONS

Aurora Pisano¹, Konstantinos Spiliopoulos² and Dieter Weichert³

¹ PAU, University *Mediterranea* of Reggio Calabria, aurora.pisano@unirc.it

² ISAAR, National Technical University of Athens, kvspilio@central.ntua.gr

³ IAM, RWTH-Aachen University, weichert@iam.rwth-aachen.de

SUMMARY

Avoiding cumbersome step-by-step calculation and determining directly the loading limits of mechanical structures under monotone, cyclic or variable loading with unknown loading history is the object of so-called Direct Methods. Starting in the first half of the last century with the theoretical foundations of Limit- and Shakedown Analysis, which are Direct Methods in this sense, they have, since then, been developed continuously. Over the last decades, the tremendous progress in numerical methods, in particular in optimization, has prominently contributed to the success of these methods and promoted the practical applicability to engineering problems in structural mechanics, pavement and general soil mechanics as well as the design of composite materials.

Since 2007 and following several Euromech-Colloquia, progress in this field is regularly reported on specialized workshops, which have, up to now, taken place in Aachen, Lille, Athens, Reggio di Calabria and Oxford.

This time exceptionally, the Workshop “Direct Methods” takes place under the auspices of the PCM-CMM2019, integrated into this format in the form of a mini-symposium.

There is no thematic restriction beyond what the title of this announcement says. Nevertheless and due to the exceptional setting of the event, the contributions of late Polish scientists will be especially highlighted and honored.