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DSL CONFERENCE

24-28 JUNE / ATHENS, GREECE / TITANIA HOTEL

**15th INTERNATIONAL CONFERENCE ON
DIFFUSION IN SOLIDS AND LIQUIDS - DSL2019**

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PREFACE

It is our great pleasure to welcome you to the **15th INTERNATIONAL CONFERENCE ON DIFFUSION IN SOLIDS AND LIQUIDS: DSL2019** (Athens, Greece – from 24-28 June, 2019).

DSL-2019 aims at attracting a balanced portion of delegates from academia, industry and research institutions and laboratories involved with research and development work. In doing so, the conference provides a binding platform for academics and industrialists to network together, exchange ideas, provide new information and give new insights into overcoming the current challenges facing the academics and the industrialists relating to mass transfer, heat transfer, microstructure and properties, nanodiffusion and nanostructured materials.

I would like to thank the Organising Committee members and members of the Local Committee for their help in contributing to the successful organisation of this meeting and especially give thanks to Dr. Nikolaos Kanellopoulos (National Center for Scientific Research "Demokritos") for his support as Local Advisor.

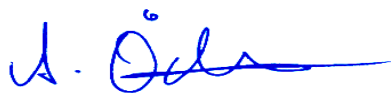
I would also like to sincerely thank the organisers of the SPECIAL SESSIONS for their great work!

A special "thank you" as well to Professor Graeme Murch, Professor Ali Shokuhfar and Professor João Delgado, co-chairs of DSL-2019, for the excellent work, significant inputs and support to this conference.

You all made the way to Athens and I would like to personally thank you and all delegates for the decision to attend DSL 2019. I hope that you will find the meeting very useful for your work and business, as well as a useful forum for obtaining new knowledge.

Have fun learning and meeting new people!

See you again in 2020 in *Malta*, for the **16th YEAR OF DSL CONFERENCES!**



Professor Andreas Öchsner
DSL CONFERENCES – Chairman



16th International Conference on Diffusion in Solids and Liquids

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Packed Bed Behaviour in Dendritic Design of Tubes

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A study, supported by a theoretical analysis, is performed to investigate the optimal design of a dendritic network of tubes filled partially or fully with packed bed of spheres. This fundamental study underpins a range of applications including thermal energy storage, and chemical processing and bioprocess applications [1-4].

The optimal design falls under the category of constrained optimization [5-7]. Applying the constraint directly into a global function to optimize, via chain rule, and the method of equal thermodynamic distance are employed to obtain the geometry that minimize the losses due to irreversible processes accompanying the flows. The geometry dependence of sizes of tubes, size of beds, porosity and Reynolds number is examined.

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