PREFACE

Preface

Pradip¹ · Beena Rai¹ · Rakesh Kumar² · Srinivasan Srikanth²

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This special issue of Transactions of Indian Institute of Metals (Trans IIM) is dedicated to Padma Shri Dr. Bal Raj Nijhawan (22 September, 1915–06 April, 2014), the first Indian Director of National Metallurgical Laboratory (1956–1966) who served as President of the Indian Institute of Metals (IIM) for two terms (1965–1966 and 1966–1967). It was befitting on the part of IIM Council to have a Symposium in his honour as a tribute to his contributions in the field of mineral processing and extractive metallurgy¹ as well as in providing leadership to the building of National Metallurgical Laboratory.

The 4 days symposium was held as a part of National Metallurgist Day celebrations and Annual Technical Meeting of IIM (NMD-ATM/IIM) at Pune (India) during November 12–15, 2014. The inaugural session of the Nijhawan Symposium was held in the afternoon on 12th

November, wherein several distinguished scientists who were personally associated with Dr. Balraj Nijhawan nostalgically recollected their association with him. The inaugural session chaired by Drs. Pradip and Beena Rai started off with a movie on the Life and Times of Nijhawan prepared by his son Pradeep Nijhawan followed by presentations by Prof. EG Ramachandran (through video), Dr. G Thyagarajan (former DG'CSIR and Director CLRI), Dr. Rajendra Kumar (Former Dy Director, NML and Director, AMPRI), Dr. Shilowbhadra Banerjee (Chairman ZEUS-NUMERIX and former Director, NML), Dr. Tridibesh Mukherjee (former VP, Tata Steel), Prof. SP Mehrotra (former Director, NML) and Dr. S Srikanth. Subsequently, the symposium had three parallel sessions spread over 3 days which featured invited talks from leading experts in the areas of mineral processing and extractive metallurgy, oral presentations and oral cum poster presentations. We had 21 invited talks, 17 oral presentations and 14 short oral cum poster presentations during the symposium. This special issue is based on select papers presented during the Symposium and invited articles from Indian and overseas experts.

The special issue comprises of eighteen peer reviewed papers covering a number of recent developments in the areas of mineral processing and extractive metallurgy. The spectrum of topics is wide. The minerals covered include ferrous (e.g. iron ore, slimes and tailings etc.), nonferrous (bauxite, uranium ores, zinc ores), coal and industrial minerals (barite, clays). The importance of mineralogical characterization in the beneficiation of iron bearing raw

✉ Pradip
pradip.p@tcs.com

¹ Tata Consultancy Services, Pune, India

² National Metallurgical Laboratory, Jamshedpur, India

¹ Dr. Bal Raj Nijhawan, the person and his achievements can be found in CSIR-NML Diamond Jubilee commemorative volume, *la vintage metallurgie*, 2011 (e-copy available at <http://www.nmlindia.org/download/CTB/index.html>).

materials, notably slime, is highlighted. A wide range of mineral processing and hydrometallurgical operations are included, ranging from traditional topics such as gravity separation, flotation, leaching, solvent extraction, to emerging areas, namely, bio-beneficiation and mechanical activation. The scope of articles extends beyond scientific research and one of the papers is directed towards National Steel policy and challenges for the iron ore producers. Overall, it is expected that the issue will have a lasting impact and benefit researchers and practicing engineers alike.

Finally, we would like to thank several of our colleagues who made this Special Issue possible. But for their help, it

would not have been possible to bring out this special issue. Thanks are due to Prof. S. Ranganathan (IISc, Bangalore) for facilitating IIM Council approval and, Prof. Bhanu Sankara Rao (MGIT, Hyderabad) as an Editor-in-Chief of Trans IIM for agreeing to bring out the special issue. A large number of anonymous reviewers have helped us in painstakingly reviewing the manuscripts. We would also like to acknowledge assistance from Dr. R. Sandhya (Editorial Manager, Trans IIM) and Mr. Sathish Srinivasan (Journal Editorial Office Assistant) on behalf of Springer.