

Mechanisms of Localized Corrosion Symposium in Memoriam of Prof. José Galvele (March 1937-July 2011) Second Issue



A technical symposium titled “Mechanisms of Localized Corrosion” was organized at the NACE CORROSION 2016, held in Vancouver, Canada, to honor Prof. José Rodolfo Galvele and his exemplary work in the field of localized corrosion. This symposium provided an open forum for active material researchers and engineers to present and discuss their most recent theoretical achievements and experimental results on new theories or principles regarding the nature of localized corrosion, and ingenious engineering practices to control corrosion. The symposium was sponsored by NACE Technical Exchange Group (TEG) 407X “Mechanisms of Pitting Corrosion” and chaired by myself (Dr. Ajit Mishra; Haynes International, United States) and Dr. Mariano Iannuzzi (NTNU and GE, Norway).

The presentations in the “Mechanisms of Localized Corrosion” symposium were all invited contributions from several academic and industrial groups from the United States, Argentina, Canada, Australia, Norway, France, Germany, Japan, and South Korea. There were 27 manuscripts presented in the symposium over two full days. A selection of presentations from the symposium have been converted to full-length papers, nine of which were published in the January 2017 issue and six in the current issue.

Dr. J. Srinivasan and Prof. R.G. Kelly open the issue with an overview of a quantitative framework which examines the Galvele pit stability criterion in the context of repassivation using information from experiments on 1D stainless steel artificial pit electrodes and mass transport modeling. Dr. A. Anderko, et al., present a mixed-potential model which has been developed for calculating the corrosion potential of passive alloys in wide range of temperature, pressure, salinity, and H_2S concentration for application in oil and gas industry. Ms. T. Kutz and Prof. D. Zander illustrate the role of chromium on the passivation of iron aluminides using electrochemical technique in conjunction with surface characterization tools. Dr. J.I. Skar and Dr. S. Olsen review the application limits for materials in offshore oil and gas production. These limits are an important parameter for optimizing the materials selection. Dr. H. Sarmiento Klapper and Dr. R.B. Rebak utilized the electrochemical techniques to assess the localized corrosion resistance of nickel alloys at high temperatures used in oilfield technology. Finally, Dr. U.K. Mudali, et al., studied the effect of nitrogen as an alloying element in 304L stainless steel for applications in spent nuclear fuel reprocessing plants. These manuscripts build upon the initial framework developed by Prof. Galvele and showcase its far-reaching applicability and enduring utility in corrosion science and engineering.

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