Dr.Placid Rodriguez Memorial Lecture - 2015
The Indian Institute of Metals,
Kalpakkam & Chennai Chapters

Dr. Placid Rodriguez (1940-2008), a renowned metallurgist and eminent scientist and technologist, had significantly contributed to the advancement of science and technology in our country by (i) establishing the vibrant field of nuclear metallurgy, (ii) leading the country to fast breeder technology, (iii) developing human resources for DRDO, and (iv) teaching and nurturing young students and researchers at IIT, Madras and NITs. Dr.Placid Rodriguez played a very decisive role in shaping the activities of The Indian Institute of Metals, at the national level.

The Indian Institute of Metals has instituted "Dr.Placid Rodriguez Memorial Lecture" in memory of Dr.Placid Rodriguez, to perpetuate his significant contributions to science and technology by organizing a memorial lecture every year. This idea has been instantly welcomed and sponsored by DRDO and BRNS. Kalpakkam and Chennai chapters of IIM have organized the memorial lecture every year, as a mark of respect to Dr.Placid Rodriguez. Dr.Placid Rodriguez Memorial Lecture Series was first inaugurated by Dr.Baldev Raj, President (Research), PSG Institutions, Coimbatore on 26th November 2009 at Indira Gandhi Centre for Atomic Research, Kalpakkam. Since then, eminent metallurgists like Prof. Atul Chokshi, IISc., Bangalore, Professor Seeram Ramakrishna, National University of Singapore, Dr. S.Srikanth, Director, National Metallurgical Lab., Prof. B.S.Murty, IIT, Madras, Prof. Indranil Manna, IIT Kanpur, and Dr. Amol A. Gokhale DMRL, Hyderabad, have delivered Dr. Placid Rodriguez Memorial Lecture.

The ***Seventh Placid Rodriguez Memorial Lecture*** was organised on 05th October 2015 at Sarabhai Auditorium, IGCAR Kalpakkam. Dr. U. Kamachi Mudali, Member, PRML Committee, Outstanding Scientist and Associate Director, Corrosion Science & Technology Group, and

Materials, Process & Equipment Development Group, IGCAR, warmly welcomed the gathering Prof. M. Kamaraj, Member, PRML Committee, Head, Dept. of Metallurgical and Materials Engineering, IIT Madras, briefly dwelt upon the genesis of Dr. Placid Rodriguez Memorial lecture and the details of the series of lectures conducted since 2009. Dr. S.A.V. Satya Murty, Distinguished Scientist & Director, IGCAR, the chief guest of the function, recalled his association and valuable contributions of Dr. Placid Rodriguez for IGCAR and expressed his happiness to be part of the event.

Dr. G.K. Dey, Distinguished Scientist & Associate Director, Materials group, BARC, Mumbai was invited to deliver “Placid Rodriguez Memorial Lecture-2015” on “Development of Alloys for Application in the Nuclear Energy Sector: Some New Perspectives”. Dr. S. Venugopal, Outstanding Scientist & Director, Metallurgy and Materials Group, IGCAR introduced the PRML 2015 speaker Dr. G.K. Dey, currently the Associate Director of Materials Group, BARC, Mumbai. Dr. Dey is well known for his excellent contributions in Phase Transformation in Zirconium and Nickel Base Alloys, Amorphous Alloys, Rapidly Solidified Crystalline and Quasicrystalline Alloys, Electron Microscopy and defect Characterization and High Resolution Electron Microscopy. Dr. G.K. Dey has won several awards and to name a few prestigious ones: MRSI Medal given by Materials Research Society of India (2001), Metallurgist of the year award by Ministry of Steel (2003), the Vasvik Award (2006), the G D Birla Gold Medal of Indian Institute of Metals (2011), and the Distinguished Alumnus Award of IIT BHU. He is also a Fellow of many prestigious professional organizations.

Dr. G.K. Dey explained that uninterrupted operation of nuclear reactors is highly dependent on the performance of the structural materials which have to perform under severe service environments. In this respect any alloy which could be considered for structural

application in a nuclear reactor has to have high corrosion resistance, adequate mechanical strength at elevated temperatures, and should withstand deleterious irradiation effects. Dr. Dey emphasized the importance of optimization of the desired properties for the chosen alloy which requires control of the microstructure that depends on manufacturing processes. He explained three categories of alloy development strategies as (i) replacement of commercially imported alloys with indigenous alloys having similar or better properties, (ii) development of new alloys using empirical approach, and (iii) development of new alloys using ab-initio approach. Dr. Dey's presentation elucidated many examples in the case of recent indigenous development of Zr based alloys, Nb based alloys, steels and nickel based alloys. He also highlighted structure - property correlations, effects of neutron irradiation and simulated ion irradiation in these alloys. Dr.Dey emphasized that considerable efforts are needed in attaining the capability of alloy development by ab-inito approach. The lecture was very well received by the 300-350 scientists and young research scholars who had participated in the event.

Dr. S.A.V. Satya Murthy presented the PRML memento, to Dr. G.K. Dey and he also released the PRML 2015 booklet containing the lecture delivered by Dr. Dey on the occasion. The programme ended with a vote of thanks from Dr. Rani P. George, Convener, PRML 2015 and Vice - Chairman of The Indian Institute of Metals, Kalpakkam Chapter.

Dr. G.K. Dey, Associate Director, Materials Group, BARC delivering Placid Rodriguez Memorial Lecture 2015 at IGCAR Kalpakkam on October 5th, 2015

Dignitaries on the dais with PRML 2015 lecture notes released by Dr. S.A.V. Satya Murthy, Director, IGCAR