

Name	Professor S. K. RANGARAJAN	
Associated lab	Joining Date	31 Mar.1989
	Exit Date	08 Sep.1992
Designation	Joining	Director
	Exit	Director
Research Domain	Theoretical electrochemistry. Analysis of Electrochemical Systems.	
Fellowships	Title	FTWAS, F.I.A.Sc., F.I.N.S.A, Homi Bhabha Fellowship
	Country	India
	Start year	
If he/she has been the winner of any prestigious international awards, please specify	Title	<ul style="list-style-type: none"> • Alumni Award of the Indian Institute of Science • Lifetime achievement award of the Chemical Research Society of India • Homi Bhabha Fellow (1970-72) • S. R. Palit Award in Physical Chemistry • CRSI Life Time Achievement Award (2008) • Associate Editor of Electrochimica Acta (Pergamon Press) • Many other awards and honors
	Institution	
	Country	
	For which year	
Describe his/her role as an institute builder		<p>During this brief tenure, he was instrumental in providing a new thrust to the activities of CECRI by holding extensive discussions with various research groups, encompassing all the areas of theoretical and applied electrochemistry. Despite the high demand on his time as a Director, he gave lectures on various topics to the BTech students at CECRI.</p>
Specify contribution in terms of creation of new disciplines in CSIR		<ul style="list-style-type: none"> • Faradaic Rectification: The redoxo-kinetic method (subsequently christened as Faradaic Rectification) propounded by Doss and Agarwal in 1951 was a unique technique in that it can be employed for electroanalytical and electrode kinetic studies. • Accelerated tafel plots for Corrosion Studies: An exponential relaxation method useful in the mechanistic analysis of corrosion phenomena was formulated and applied to a variety of systems. • Electrochemical Phase Formation: The theory of electrochemical phase formation was one of the favourite topics which engaged his attention continuously. He developed the systems analysis for electrochemical systems by defining a new operator called 'm-operator' ('m' denoting

		<p>the mass transfer).</p> <ul style="list-style-type: none"> • Electrical Double Layer Theories: The analysis of adsorption phenomena (ions, solvent dipoles, organic compounds) at the electrochemical interfaces has been a fascinating topic for him ever since his discussions with the Academician Frumkin. • Many Body Theory and Electron Transfer Formalism: Commencing from the late seventies and till early nineties, SKR focused his attention on quantum electrochemistry encompassing the theory of electron transfer at electrode surfaces and chemisorption phenomena. • Modelling of Roughness: The effect of surface roughness on the diffusion-limited current density in electrochemical techniques was investigated with special reference to interfacial admittance. • Impedance Spectroscopy: He made significant contributions to the analysis of impedance data pertaining to complex systems and geometries; in particular, he decoded the signature of various processes (double layer capacitance, charge transfer resistance, constant phase elements, etc.) in the experimental impedance data (Nyquist plots, Bode plots, etc.). • Pade' Approximants: The extreme versatility of Pade approximants and other rational function approximations to the study of chronopotentiometry, virial equation of state, phase transitions and critical phenomena¹⁹ was pointed out with a variety of new examples. • Special functions and Mathematical Analysis: He has repeatedly emphasized the 'un-reasonable effectiveness of mathematics' in a variety of physicochemical situations.
<p>specify contribution in terms of creation of large industrial impact of CSIR</p>		<p>The range of miscellaneous topics is so diverse that it is difficult to list each one of them; suffice to point out a few topics in applied electrochemistry in order to illustrate his constant touch with industrial and experimental electrochemistry viz. current distribution in bipolar cells, semiconductor electrochemistry, supercapacitors, lead acid battery.</p>