Dependence of the dielectric constant of electrolyte solutions on ionic concentration

Nir Gavish
Technion – Israel Institute of Technology, Haifa, Israel
Keith Promislow
Michigan state University, East Lansing, MI, USA

(Dated: August 28, 2012)
http://arxiv.org/pdf/1208.5169.pdf

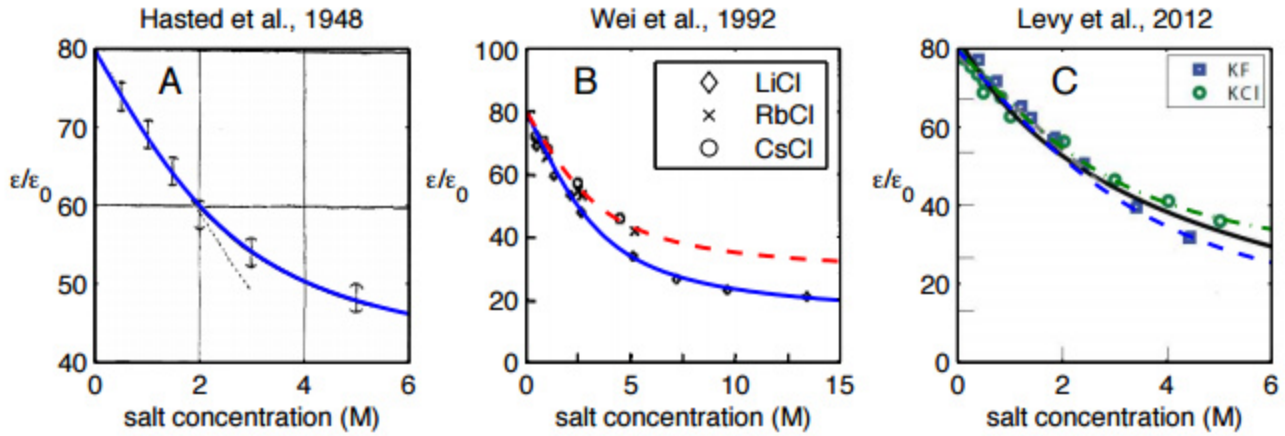

FIG. 2. (color online) Comparison of the predicted dielectric constant (2), with experimental data as function of ionic concentration c for various salts. The theoretical prediction was calculated using β as a fitting parameter. A: Data for NaCl salt from [1], compared to (2) with $\beta = 42.07$. B: Data from [18], where fit for RbCl and CsCl salt (– –) is obtained with $\beta = 67.20$ and for LiCl (–) with $\beta = 53.22$. C: Figure 2(b) from [5] where fit for KF (– –) is obtained with $\beta = 75$ and with $\beta = 60$ for KCl (.–). Solid black curve is the prediction obtained using the field-theory approach [5].