Discovery of a mathematical error in Albert Einstein’s paper 1904 entitled “On the general molecular theory of heat” and calculating the new order of magnitude of the radiation wavelengths (black-body radiation)

I have recently discovered a mathematical error in Albert Einstein’s derivation of equation \( \sqrt{\frac{k}{c}} = 2 \left( \frac{R}{\sqrt{C}} \right) \) (Equation 28 in his paper, k and c are universal constants for ideal gas law and Stefan-Boltzmann law). Because of this mathematical error in the equation, his prediction of \( (0.420/T) \) for the order of magnitude of the radiation wavelengths is incorrect. I have derived the correct form of equation [28] given in his original 1904 paper, and calculated the new value for the order of magnitude of the radiation wavelengths as \( (0.263/T) \). This new value is based on the solution of the first order differential equation, \( \int \frac{d\epsilon}{\sqrt{\epsilon}} \) for the value of \( \epsilon \). The correct value of the order of magnitude of the radiation wavelengths is 0.263/T. Correcting this mathematical error indeed shows that Einstein’s prediction for the order of magnitude of the radiation wavelengths is more accurate than he thought during his life time.

Biography

M Khoshnevisan is an Associate Professor at Ajman University. He is a member of the American Physical Society. He was formally invited as a visiting scholar at the University of California-Berkeley and Harvard University during 2004-2005. He received the “Certificate of Achievement” in 2003 for his contribution to BISC FLINT-CIBI International Joint Workshop on Soft Computing for Internet and Bioinformatics from the World-renowned scientist and inventor of Fuzzy Logic, Professor Emeritus Lotfi A. Zadeh, at the University of California- Berkeley. His research interest is in Brownian motion, statistical physics, and general molecular theory of heat.

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