THE GENERALIZED k-MOMENT METHOD FOR THE MODELLING OF CUMULATIVE k-DISTRIBUTIONS OF H_2O AT HIGH TEMPERATURE

Frédéric André*, Vladimir P. Solovjov**, Longfeng Hou*,
Rodolphe Vaillon*, Denis Lemonnier***
*Université de Lyon, CNRS, INSA-Lyon, UCBL, CETHIL, UMR5008, F-69621, France
**Brigham Young University Department of Mechanical Engineering,
CTB 435, Provo, UT 84602, USA
***Institut Pprime, CNRS-ENSMA-Université de Poitiers, UPR3346,
86961 Futuroscope, France

ABSTRACT. In the present work, a new formulation, limited to a few number of parameters, of cumulative k-distributions over narrow bands from high resolution spectra is presented. The method is described and assessed through comparisons with reference Line-By-Line (LBL) data for pure H_2O, in terms of transmission spectra and cumulated k-distributions. Results demonstrate that the proposed approach is very accurate and therefore is likely to provide reliable approximate models for the cumulative k-distribution and the narrow band transmission functions in uniform media.