

Title: ABSORPTION Coefficient of Carbon Dioxide near Earth Surface

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Absorption coefficient of emission gases of carbon dioxide responsible for temperature in the troposphere layer, which is less than the altitude of 10 km in the atmosphere, is presented in this work. It has been well known that the solar irradiation within short wavelength range near the visible range can be absorbed, scattered and transmitted by the atmosphere, and absorbed and reflected by the earth ground. The ground emits radiation in the ranges of long wavelengths. In the presence of carbon dioxide and other emission gases, the atmosphere acting as the glass of a greenhouse increases temperature of the atmosphere. Even though global warming strongly affects the life of the human being, the cause of global warming is still controversial. This work thus establishes a fundamental, systematical and quantitative analysis of absorption coefficient of carbon dioxide in the troposphere layer. Absorptions of carbon dioxide are considered in bands centered at 15, 10.4, 9.4, 4.3, 2.7, and 2 micrometers. The predict absorptions agree with experimental and theoretical results in exponential wide band model.

Biography

Dr. Peng-Sheng Wei received Ph.D. in Mechanical Engineering Department at University of California, Davis, in 1984. He has been a professor in the Department of Mechanical and Electro-Mechanical Engineering of National Sun Yat-Sen University, Taiwan, since 1989. Dr. Wei has contributed to application of heat transfer in manufacturing and materials processing, and atmospheric phenomena. Dr. Wei has published more than 90 SCI journal papers, given keynote or invited speeches in international conferences more than 120 times. He is a Fellow of AWS (2007), and a Fellow of ASME (2000). He also received the Outstanding Research Achievement Awards from both the National Science Council (2004), and NSYSU (1991, 2001, 2004), the Outstanding Scholar Research Project Winner Award from National Science Council (2008), the Adams Memorial Membership Award from AWS (2008), the Warren F. Savage Memorial Award from AWS (2012), and the William Irrgang Memorial Award from AWS (2014). He has been the Xi-Wan Chair Professor of NSYSU since 2009, and Invited Distinguished Professor in the Beijing University of Technology, China, during 2015-2017.

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