

Electrical, thermal and mechanical properties of Vertically Aligned Multi Walled Carbon NanoTubes (VA-MWCNT) make them an ideal candidate to replace some of conventional materials in micro and nano-electronic components. Integrating this material in micro components requires a good knowledge of their properties. As the electrical and thermal properties, the MWCNT mechanical properties are difficult to assess. Several techniques have been developed to estimate the CNT Young's modulus and the obtained results cover a large range of scale. In this study, we propose an indirect technique for MWCNT carpet Young's modulus measurements by using the nanoindentation technique. Nanoindentation tests are performed on a metallic film deposited on MWCNT. The measured equivalent reduced modulus takes into account the elastic properties of the metallic thin film and those of the MWCNT substrate. Bec et al. model, introduced in 2006, is used to separate elastic properties, and thus determine the MWCNT reduced Young's modulus which is estimated between 329 and 352 GPa. Knowing the indenter mechanical properties, we estimate the Young's modulus in the 461 to 507 GPa range.