

Abstract Submitted  
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**Point Mutations Effects on Charge Transport Properties of the Tumor-Suppressor Gene  $p53$** <sup>1</sup> RUDOLF A. ROEMER, Department of Physics and Centre for Scientific Computing, University of Warwick, UK, CHI-TIN SHIH, Department of Physics, Tunghai University, Taiwan, STEPHAN ROCHE, CEA/DSM/DRFMC/SPSMS Grenoble, France — We report on a theoretical study of point mutations effects on charge transfer properties in the DNA sequence of the tumor-suppressor  $p53$  gene. On the basis of effective tight-binding models which simulate hole propagation along the DNA, a statistical analysis of mutation-induced charge transfer modifications is performed. In contrast to non-cancerous mutations, mutation hotspots tend to result in significantly weaker *changes of transmission properties*. This suggests that charge transport could play a significant role for DNA-repairing deficiency yielding carcinogenesis.

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