

青山学院大学 物理・数理学科 コロキウム

2019年度 第6回

下記の通りコロキウムを企画致しました。学生や分野の違う方にもわかるレベルから始めて下さるようお願いしてあります。どなた様もご自由に是非ご聴講ください(事前参加登録なし)。

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講演者 Fabrizio Cleri 氏 (The University of Lille, the Institut d'Electronique de Microélectronique et de Nanotechnologi (IEMN))

日時 8月27日(火) 午後4時45分から

場所 青山学院大学 理工学部 L棟6階 L603室

講演題目 「Modelling DNA damage and repair at the molecular scale」

The genetic material in our cells is constantly under stress from internal and external sources. DNA is multiply damaged and broken during the normal cell-duplication and checkpoint processing, and most importantly by external sources such as ionizing radiation and harmful chemicals. A quantity of proteins collaborate to repair the many thousands of damages that each cell receives each day. While many biological details of the repair steps are known at the qualitative level, a true molecular understanding of these mechanistic processes is still lacking. We perform large-scale molecular simulations aimed at elucidating some of these mechanisms, by modelling very large DNA-protein structures in a realistic environment. Such simulations, at the edge of the current capabilities of parallel supercomputers, require the use of advanced techniques for interpreting the massive amount of data. The molecular models have interesting applications, e.g. for radiation protection in deep-space travel, which represents a major concern for human health in future interplanetary missions, and for nanotechnologies in which DNA is used as template for the automated synthesis of novel devices.
