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Electro-migration

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ABSTRACT : Electromigration is a mass transfer phenomenon occurring in metallic materials and liquid ionic solutions induced by an electric field. The interest for electromigration has grown with microelectronics to increase the reliability of the connection between components. The theory is mainly based on the assumption that the atoms in a metallic lattice act as ions in an electronic cloud, thus submitted to a direct electrostatic force due to the electric field and to momentum transfer from the electron wind. This presentation focusses on electromigration of C in iron. Steel is the material which is the most used in the world. Joule heating is now widely used for steel processing and forming. So it is really important to account for the electromigration phenomena in order to control the final microstructure and mechanical properties. However, these phenomena are not well understood and actual model has still to be discussed.

SHORT CV : Ο Dr. Patrice Chantrenne είναι Καθηγητής στην INSA (Institut National des Sciences Appliquées de Lyon), και μέλος της ομάδας METAL στο MATEIS (Laboratoire de Science des Matériaux <https://mateis.insa-lyon.fr/en/node/1449>). Η κύρια ερευνητική του δραστηριότητα αφορά στην εφαρμογή μεθόδων μοριακής δυναμικής για την πρόβλεψη των θερμοφυσικών ιδιοτήτων νανοδομών καθώς και αγώγιμων ή/και διηλεκτρικών νανοδομημένων υλικών.