国立大学法人
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国立台湾科技大学とのジョイント･プログラム事業

研究課題名：Study on nanoparticles slurry in Eletro-Kinetic Force during Chemical Mechanical Planarization
（電界援用CMPにおける機能性ナノ微粒子に関する研究）

共同研究者

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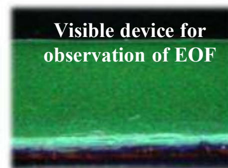
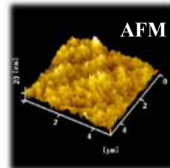
研究概要

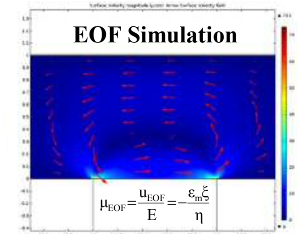
KYUTECH: To investigate fullerene contained slurry, and observe the electro-osmosis flow phenomenon in visible device. Surface measurement method, AFM, is applied to observe the surface property of post-CMP as well.

NTUST: Simulating the electro-osmosis flow above the pad to find out optimized design of electrodes, and using EKF-CMP equipment to test the efficiency of fullerene contained slurry in Cu-CMP.

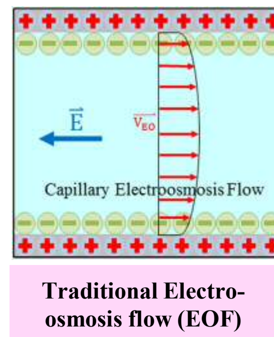




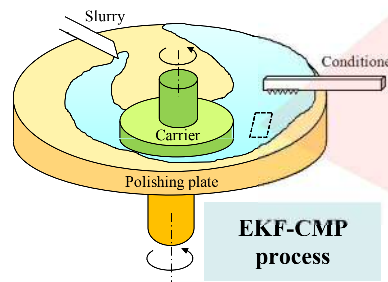
EKF-CMP equipment



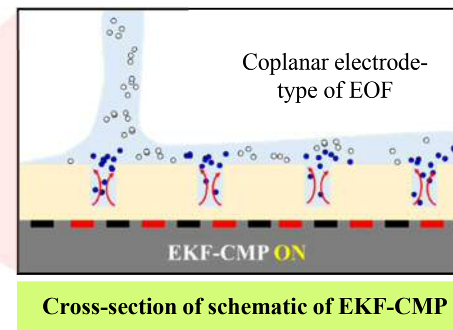
According to the experience on fullerene and relative researches, KYUTECH introduces the derivatives of fullerene into the slurry to assist the abrasion behavior.



Traditional Electro-osmosis flow (EOF)



EKF-CMP process



Cross-section of schematic of EKF-CMP

NTUST has experience on developing EKF-CMP and manufacturing techniques so that the reasonable and nice efficient design will be easier to purchase.

Chemical Mechanical Planarization(CMP) is one of the topical processes grasping the linchpin of metallization in semiconductor manufacturing. In this study, the water-soluble derivatives of fullerene, whose sizes are smaller than regular abrasives, are used as abrasive for CMP process and arranged with EKF-CMP process.