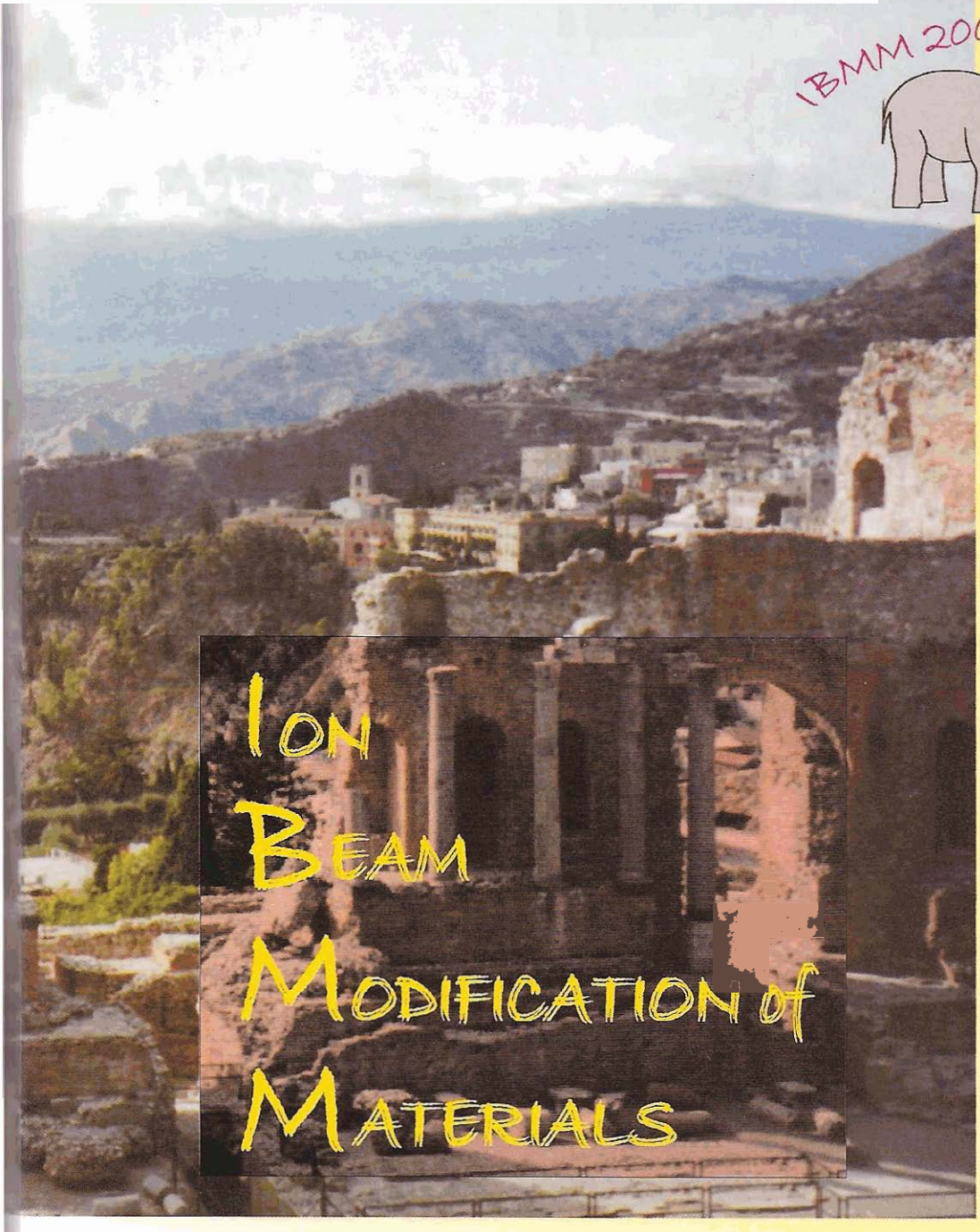

IBMM 2006

Ion Beam Modification of Materials

Program and Abstracts

15th International Conference

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Characteristics of TiO_x thin films doped by phosphorus: Wettability, semiconductor performance and biocompatibility

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The titanium oxide (TiO_x) thin films are a potencial biomaterials due to their remarkable biocompatibility. In this work, TiO_x thin films were fabricated by pulsed reactive closed-field unbalanced magnetron sputtering of high purity single crystal silicon target in a mixture of Ar and O_2. Then the films were modified by ion implantation and succedeut anneal at different temperature. XRD and XPS were employed to characterize their structure and concentration. Furthermore, wettability, electric conductivity / semiconductor performance of the film were measured. The results showed that their surface hydrophilicity / hydrophobicity and electric performance were strongly influenced by ion implantation and anneal. The films show higher conductivity and n-type nature after annealing. Endothelial cells were cultured on the t films. The quantity, morphology and activity of the endothelial cells were also invcstigated. More hydrophilic surface can improve cell absorption and growth.