Coatings and thin films in Bio-medical engineering

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Human health care is one of the prime concerns. Coatings and surface engineering (CSE) has enormous potential in addressing major concerns of bio-mimicking, bio-compatibility and bio-active coatings. CSE has a major role in bio-implants (mainly dental and orthopaedics) and stents. Hydroxyapetite, antimicrobial silver, titanium nitride and diamond like carbon (DLC) are some of the coatings already in use. The techniques used to develop these coatings and surface treatments include plasma spraying, dipping and spin coating, low temperature plasma and microblasting etc. Conventional sputtering and pulsed laser deposition (PLD) are still to be explored. Each coating and surface engineering demands specific questions to be answered as demanded by medicine. The coating durability and functionality have very stringent requirements.

Present talk gives an over view of the field of coatings and surface engineering with reference to bio-medical engineering.