

HiLASE Centre is pleased to invite you to attend the seminar:

## Synergistic effect of laser patterned dual scale structures and surface chemistry on lotus and rose petal effect

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Growing demand for superhydrophobic surfaces in recent years is associated with many attractive science and engineering applications including self-cleaning, anti-icing and anti-corrosive behaviors. Aluminum and stainless steels finds wide range of industrial applications due to its superior physical, chemical and mechanical properties. Inspired by the "lotus effect" dual scale nano/microstructures has been fabricated by direct laser writing with ultrafast laser sources and precise control over the geometrical dimensions of the micro features. The presentation focuses on the recent progress achieved by laser machining group at Hilase using PERLA C laser source. Lamellar and lotus leaf papillae like structures covered with nanoscale protrusions were developed by laser ablation technique on metals. The laser treated hydrophilic surface was post processed to create layer of hydrocarbon to reduce the surface free energy for the wetting property transformation. It was found that, sole presence of nanoscale structures on inherent metal surface with predominant presence of non-polar elements can yield only near superhydrophobic surface or rose petal effect. The analysis establishes strong relation between the hierarchical structures and dominant presence of non-polar elements is critical for superhydrophobic property.

When: Friday, **03/05/2019 at 14:00**

Where: Seminar room, HiLASE Centre