



## Low temperature plasma based anti-fogging and anti-fingerprinting coatings

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In this presentation, a facile preparation method involving the use of low temperature plasmas will be presented to form a transparent self-cleaning antifogging and anti-fingerprinting coatings on polycarbonate (PC) substrates. The antifogging coating involves thin double layered SiO<sub>2</sub>/TiO<sub>2</sub> structure developed by two-step protocol – (i) a room temperature oxygen plasma treatment of the PC substrate, and (ii) subsequent deposition of the SiO<sub>2</sub>/TiO<sub>2</sub> films using pulse laser deposition (PLD). The anti-finger printing coatings involves three-step process – (i) oxygen plasma treatment of PC substrate, (ii) followed by PLD deposition of porous silicon dioxide, and (iii) finally applying trichloro(1H,1H,2H,2H-perfluorooctyl) silane

(PFTS) on the silica surface. Performance analysis is done using multiple tests. The multifunctional coating on polymer substrates provides an avenue for practical applications for optical lenses and displays.

### References

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- [2] Sun, Y., Rawat, R. S., & Chen, Z. (2022). Mechanically robust multifunctional antifogging coating on transparent plastic substrates. *Applied Surface Science*, 580, 152307