THE UNIVERSITY OF HONG KONG

DEPARTMENT OF MECHANICAL ENGINEERING

SEMINAR

Online

Title: Green Printing Technology for Manufacturing Functional Devices

Speaker: Prof. Yanlin Song
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Date: 22 September, 2022 (Thursday)

Time: 9:30 a.m. (Hong Kong Time)

Zoom meeting: 1) Link to join the meeting:

https://hku.zoom.us/j/99707351744?pwd=Z2I0SWJyU2l2N2haS0NBMkRUb2tXdz09

2) Meeting ID: 997 0735 1744

3) Password: 989294

Abstract:
Based on the research of the droplet drying process on surfaces with different wettability, controllable nanoparticles assembling, and stereo structures patterning were achieved. [1] By controlling the droplet spinning motion and the movement of the vapor-solid-liquid three-phase contact lines, the basic units from 0D to 3D structures (dot, line, plane, and stereo structures) via the printing technology can be precisely fabricated. [2] Accordingly, the functional nanoparticles are assembled into desired patterns with single nanoparticle resolution. With the assembly of metal nanomaterials via the printing process, patterned linear or curved 1D/2D structures on diverse substrates are achieved.[3] The desirable patterns contribute remarkable applications in sensitive electronic skin, multi-layer circuits, ultra-integrated complex circuits, solar cells, soft actuators and biological chip.[4] These achievements are benefited from the fundamental research in interfacial wettability manipulation,

morphology control of drying droplets, as well as functional nanomaterial fabrication, which found the theoretical and technical system of Green Printing Technology.

References:

1. **a) M. Su and Y. Song, Chem. Rev., 2021, 122, 5144-5164; b) F. Min, Y. Qiao, Y. Song, et al., Angew. Chem., Int. Ed., 2021, 60, 16547-16553. c) Y. Zhang, L. Wu, Y. Song, et al., Nat. Commun., 2020, 11, 4685. d) S. Chen, Y. Qiao, Y. Song, et al., Adv. Mater., 2022, 34, 2200928.**
2. **a) Q. Pan, M. Su, Y. Song, et al., Adv. Mater., 2020, 32, 1907280; b) A. Li, H. Li., Y. Song, et al., Sci. Adv., 2020, 6, eaay5808; c) A. Li, H. Li., Y. Song, et al., Proc. Natl. Acad. Sci., 2022, 119, e2201665119; d) L. Wu, Y. Song, et al., Nat. Commun., 2020, 11, 521; e) Z. Zhao, H. Li., Y. Song, et al., Nat. Commun., 2021, 12, 6899.**
3. **a) M. Su, Y. Song, et al., Angew. Chem., Int. Ed., 2020, 59, 14234-14240; b) M. Zou, L. Wu, Y. Song, et al., Adv. Mater., 2021, 33, 2102443; c) H. Li, Y. Song, et al., Angew. Chem., Int. Ed., 2020, 59, 10535-10539.**
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Biography:

Yanlin Song is a professor and director of the Key Laboratory of Green Printing at Institute of Chemistry, Chinese Academy of Sciences (ICCAS). He received his Ph.D. degree from the Department of Chemistry at Peking University in 1996. Then he conducted research as a postdoctoral fellow at Tsinghua University from 1996 to 1998. He has been working at ICCAS since 1998. His research interests include nanomaterials and green-printing technology, printed electrics and photonics, and fabrications of nanostructured functional devices. He has published more than 400 papers and 15 books and chapters, with an H-index of 95, and has been granted more than 130 patents from China, USA, European Union, Japan and Korea, etc.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. Nicholas Fang at 3917 2639.

Research area: Advanced Materials and Natural & Built Environment