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Publication date:
2018

Document Version
Publisher's PDF, also known as Version of record

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"*The deepest and most important unsolved problem in condensed matter science is probably the theory of the nature of glass and the glass transition*" as the Nobel Laureate P.W. Anderson stated in 1995. Over the past two decades, glass scientists have been putting huge effort into the understanding of the glass transition, and have also made substantial progress, while many challenging problems still remain. In this lecture, I will give a brief overview about the advances concerning the following aspects: 1) Microscopic origin of glass transition; 2) Impact of dynamical and static heterogeneities on glass transition; and 3) Correlation of glass transition with chemical bonding, medium-range order structure, topological constraints, and liquid fragility; 4) Polyamorphic transitions. I will focus on our own recent understanding of calorimetric glass transition, and finally point out perspectives in studying glass transition and relaxation.

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