Glasses are ubiquitous in our day life. They combine the microscopic disordered structure of liquids with the macroscopic mechanical properties of solids. Their use embraces many diverse fields such as optics, telecommunications, electronics, pharmaceutical drugs, mechanical engineering and many others. However, in spite of their societal and technological impact glasses are not well understood. The huge increase of many orders of magnitude of the viscosity as the temperature of the liquid phase is lowered across the glass transition temperature is not accompanied by any significant structural change. The logarithmic dependence of viscosity with temperature hampers the production of dense and more stable glasses in human time scales, since roughly increasing density by 1.5% may take as long as $10^6$ years by conventional aging treatments. However, vapor deposition allows for rapid equilibration of surface molecules during growth and therefore thin film highly stable and dense glasses can be produced in few minutes or hours. These glasses show remarkable new properties and offer unprecedented opportunities both at the fundamental and applied level. In this talk I will address some of the unusual properties of these glasses and the impact that these new properties may have on future applications.

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