

# **Bonding and properties in phase change materials through ab initio simulations**

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The ability of Phase Change Materials to undergo a very fast switching between a crystalline and a glassy phase is at the basis of emergent non-volatile memories. Using Ab Initio simulations, we address the structure and some properties of the glassy phase, like aging, but also describe how bonding in the crystalline phase appears to be unconventional, which singles out a distinct region occupied by phase change materials in a quantum mechanically derived 2-D map of materials.