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Phase-change thin films growth and functionality

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Propositions

Accompanying the doctoral thesis:

Phase-change thin films growth and functionality

Towards phase-change memory and reconfigurable Nanophotonics

1. Talking about the covid pandemic, Trevor Noah said “as humans we became so comfortable knowing, that we forget how uncertain life is.” Paradoxically, the uncertainty in life will remain even if we have much more knowledge in the future.
2. Generally MBE is considered to produce best quality films. However, PLD is capable of producing comparable quality films with more flexibility, speed, and ease.
3. To ensure the production of high-quality thin films using pulsed laser deposition (PLD), it is crucial to suppress the formation of directional pillars from the laser-target interaction (Chapter 2).
4. Ultra-thin crystalline antimony films on SiO₂ substrates behave like thick amorphous films (Chapter 6).
5. Phase singularities associated with perfect light absorptions (vanishing reflectance) provides a great opportunity for optical sensor applications (Chapter 7).
6. By using a focused ion beam (FIB), it is possible to achieve functional and superior metasurfaces through the local nanostructuring of reflective devices composed of phase-change materials (Chapters 8&9).
7. Nurture your mind with great thoughts, for you will never go any higher than you think (Benjamin Disraeli).
8. To PhD students, postdocs, and academics: have the confidence in yourself that predatory journals have in you (From Twitter by Dr. Stephen Axon).
9. Buzzing words like climate-change, woke-culture, inclusiveness, and gender equality have become PR stunts and status indicators. Real change will never be achieved until we get rid of our addiction to convenience and low-resolution thinking.

By Daniel T. Yimam