

# **Green Nanotechnologies for Energy Efficient Buildings: A Sketch**

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This talk attempts to give a rapid overview over a number of recent research activities aimed at developing more energy efficient buildings.<sup>1</sup> I explain why we need more energy efficient buildings, and how many of the desired technologies can be discussed from the perspective of the thermal and solar energy around us, how this energy is modified by the atmosphere, and the luminous sensitivity of the eye. New technologies for windows are discussed, with foci of low-emittance coatings, solar control coatings, and chromogenic (electrochromic and thermochromic) solutions. I also present some information on luminaires, solar collectors and solar cells, and cooling via high-albedo paints and via exposure to the clear sky (“sky cooling”). The talk is ended with some information on sensors for air quality, photocatalytic air cleaning, and thermal insulation via nanomaterials.

## Reference

1. G. B. Smith and C. G. Granqvist, *Green Nanotechnology: Solutions for Sustainability and Energy in the Built Environment* (CRC Press, Boca Raton, USA, 2010).