

The Dynamics of Indoor Aerosol: what is important, where, when and why?

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Recent 'Global Burden of Disease' studies have provided quantitative evidence of the significant role indoor and outdoor aerosols play as human health risk factors. Tobacco smoke, including second hand smoke, household air pollution from solid fuels or ambient particulate matter are among the top risks, leading to lower life expectancy around the world. At the same time, theories behind the basic processes driving aerosol dynamics are reasonably well established and have good mathematical description. There are also various types of well established modelling approaches available, including those based on balance equations, CFD or Monte Carlo modelling, and they have been employed in many research projects to date, in order to gain insight into the nature of indoor aerosol dynamics. Numerous experimental studies have also quantified the relevant parameters of indoor environments and indoor air.

Has this science of indoor aerosols been used in urban planning and building design to reduce the risks posed by indoor aerosols? Have we extended existing skills in the numerical computation of aerosol dynamics or aerosol spatial distribution towards indoor particle formation processes? Or instead, are we shifting to personal exposure assessment? This presentation will explore these and other contemporary challenges in relation to indoor aerosol research and its application.