

**Seminar on Physics and Chemistry  
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**Revisiting Air Pollution Exposure: The Effects of Population Activity and  
Indoor Infiltration**

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**Abstract**

Current air pollution exposure assessments often underestimate exposure to air pollutants by neglecting two key factors: population mobility and the infiltration of outdoor pollutants into indoor environments. These oversights introduce bias, leading to non-representative exposure estimates and subsequent estimation of health effects.

In this seminar, an overview of a dynamic exposure estimation approach designed to address these challenges is introduced. By integrating population activity and pollutant infiltration, this approach offers a more accurate assessment of exposure from urban to regional scales. Comparing this dynamic modeling approach to traditional static methods reveals substantial differences, particularly for pollutants like PM<sub>2.5</sub>, NO<sub>2</sub>, and O<sub>3</sub>. The findings demonstrate the potential underestimation of exposure and health impacts in conventional assessments, highlighting the importance of incorporating dynamic elements to better support public health policies.