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# Identification of a Virtual Sensor Model for Diesel Engine Emissions by Means of Optimal Input Design

By Markus Hirsch

Trauner Verlag Jan 2012, 2012. Buch. Book Condition: Neu. 20.8x14.6x cm. Neuware - Current emission measurements of a combustion engine are often required for optimal engine control or for on board diagnosis (OBD). In the case of Diesel engines, nitrogen oxides (NOx) as well as particulate matter (PM) form the critical emissions which are crucial to meet the legislative emission limits. Besides the possibility to measure these emissions by means of physical sensors, virtual sensors provide an alternative by estimating these values. The basis of such sensors are mathematical models which simulate the emission formation. This work deals with the data-based modeling of these emissions. The aim of the work is to design experiments done on an engine test bench such that the variance of the identified parameters becomes minimal. Consequently, even with few data it is possible to identify accurate models. For this approximation, polynomial NARX models have been used. By increasing the polynomial degree, these models are able to approximate complex nonlinear dynamic systems. 170 pp. Englisch.

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