Abstract:

The priority of the presentation is to give a contribution to improve human health and an environment without pollution. As part of its Zero Emission Drive Unit – Generation 1 (ZEDU-1) project – the German Aerospace Center (Deutsches Zentrum für Luft - und Raumfahrt; DLR) and the engineering company HWA have developed and successfully tested an electric road vehicle that enables mobility almost entirely without emissions. The electric car largely reduces the emission of particulate matter and microplastics caused by the abrasion of tyres and brakes. This makes it the most environmentally friendly road vehicle in operation worldwide. The project focuses on components that have received rather little attention so far and whose emissions are now gradually being regulated by the EU Commission through legislative measures – specifically tyres and brakes. In this vehicle, all components are newly developed, including the power electronics, the drive in the form of an electric motor braking unit as well as the housing of the tyres and the aerodynamically adapted components on the vehicle. Two test settings were used to get the measurement results, on an all-wheel roller dynamometer and on real drive test sites. The presentation shows the design of the vehicle, the development of the components and discusses the results.