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## **Development of membrane electrode assembly for fuel cell vehicles**

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Recently, polymer electrolyte membrane fuel cells (PEMFCs) are has been attracted great attention as a promising alternative power train for the ultimate eco-car, fuel cell vehicle (FCV), which is now running on the road, because of the zero emission, quick charging, high efficiency and power density. Despite recent advances of PEMFC system during the decades, high cost and low durability are still key issues to address toward the expansion of the FCV market. The performance of PEMFC system decreases gradually during the operation that mainly comes from the degradation of the electrolyte membrane, catalyst and carbon support in the membrane electrode membrane (MEA). Thus, to improve the durability and to reduce the cost of the MEA, the development of catalysts is demanded including the robust support and active composition. In this presentation, the possibility of the graphitized carbon support in a view of the MEA level will be discussed in terms of durability of MEA. Generally, it is well known fact that graphitized carbon is more stable than the high surface area active carbon and is, however, hard to highly disperse the Pt nanoparticle on the surface. It will be discussed how to increase the Pt dispersion with higher loading and the effect of the modification of graphitized carbon support. In addition, the another approaches to improve the durability and to reduce the cost will be presented.