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Autore	Peters Thijs
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Sommario/riassunto	Palladium (Pd)-based membranes have received a great deal of attention from both academia and industry thanks to their ability to selectively separate hydrogen from gas streams. The integration of such membranes with appropriate catalysts in membrane reactors allows for hydrogen production with CO ₂ capture that can be applied in smaller bioenergy or combined heat and power (CHP) plants, as well as in large-scale power plants. Pd-based membranes are therefore regarded as a Key Enabling Technology (KET) to facilitate the transition towards a knowledge-based, low-carbon, and resource-efficient economy. This Special Issue of the journal Membranes on "Pd-based Membranes: Overview and Perspectives" contains nine peer-reviewed articles. Topics include manufacturing techniques, understanding of material phenomena, module and reactor design, novel applications, and demonstration efforts and industrial exploitation.