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Fluid Mechanics of a High Performance Racing Bicycle Wheel JEAN-PIERRE MERCAT, BRIEUC CRETOUX, FRANCOIS-XAVIER HUAT, MAVIC, France, BENOIT NORDEY, MAXIME RENAUD, ENSAM, France, FLAVIO NOCA, University of Applied Sciences - hepia - Geneva, Switzerland — In 2012, MAVIC released the most aerodynamic bicycle wheel on the market, the CXR 80. The french company MAVIC has been a world leader for many decades in the manufacturing of bicycle wheels for competitive events such as the Olympic Games and the Tour de France. Since 2010, MAVIC has been in a research partnership with the University of Applied Sciences in Geneva, Switzerland, for the aerodynamic development of bicycle wheels. While most of the development up to date has been performed in a classical wind tunnel, recent work has been conducted in an unusual setting, a hydrodynamic towing tank, in order to achieve low levels of turbulence and facilitate quantitative flow visualization (PIV). After a short introduction on the aerodynamics of bicycle wheels, preliminary fluid mechanics results based on this novel setup will be presented.

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