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Flow-Visualizations behind a High Diver

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Fig. 1. Smoke wire flow visualization in the windtunnel

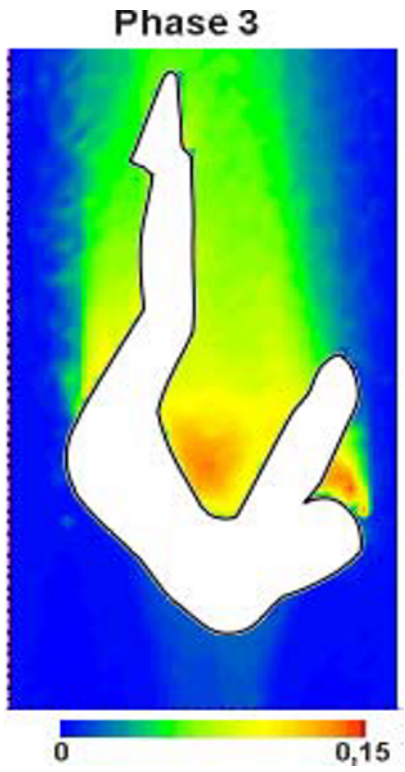

Fig. 2. LDA results of the Reynolds normal stress term u'^2/U_∞^2 in the cavitation tunnel

The figure illustrates exemplary results from a forward rotating jump in rip-technique when the body has already completely entered the water. Visualizations were made by the smoke wire technique in a Goettingen type windtunnel and by Laser-Doppler measurements in a cavitation tunnel at University Rostock. Both experiments clarify that the flow behind a high diver in rip-technique configuration forms a separation bubble from the head to the hip of the model. Secondary splashes can be attributed to this recirculating flow zone. At the left side the flow was visualized by the smoke wire technique. For these windtunnel experiments we used a tungsten wire with a diameter of 200 µm which was coated with white-oil. The wire was heated by a DC current of 4 A. The evaporating and then condensing oil forms white streaklines. It can be observe that the flow is turbulent directly behind the body. At the right side results of the LDA experiments in the cavitation tunnel are plotted in form of Reynolds normal stress component u'^2, normalized with the oncoming flow U_∞^2. The LDA results show high amplitudes for the u´-fluctuations in the head- and hip-region and in the wake flow. Maximum amplitudes (red color) occur directly behind the head and in the hip-region indicating the existence of a separation bubble.