

Abstract Submitted  
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**POD- Mapping and analysis of hydroturbine exit flow dynamics<sup>1</sup>**

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— Pairwise radial dynamic measurements of the swirling draft tube flow have been made at the 25 MW Svoraka power plant in Surnadal operating at 48% load at 6 radial and 7 angular positions. The data is analyzed with traditional methods as well as with POD. The measurements were made in the turbine draft tube/exit flow in an axial measurement plane about 1200mm downstream the turbine runner. The draft tube diameter in the measurement plane is about 1300mm. The flow rate during measurements was close to 5.8m<sup>3</sup>/s. Two probes were used; both of length  $L_e=700$  mm and made of stainless steel with an outer diameter of  $D_o=20$  mm and inner diameter  $D_i=4$ mm. At the end of each probe a full bridge cylindrical KULITE xcl152, 0-3.5, was mounted. 90 seconds samples at 10 kS/s were taken. The POD analysis largely follows that of Tutkun et al (see e.g. AIAA J., 45,5,2008). The analysis shows that 26% of the pressure pulsation energy can be addressed to azimuthal mode 1.

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