



evropský
sociální
fond v ČR



EVROPSKÁ UNIE



MINISTERSTVO ŠKOLSTVÍ,
MLÁDEŽE A TĚLOVÝCHOVY



OP Vzdělávání
pro konkurenceschopnost

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Název projektu: Mezinárodní centrum pro informaci a neurčitost

Registrační číslo: CZ.1.07/2.3.00/20.0060

Zápis z práce s cílovou skupinou

Název akce: Vědecká panelová diskuse, Dr. Rafal Demkowicz-Dobrzanski (Faculty of Physics, University of Warsaw, Poland)

Datum: 24. duben 2014

Místo konání: katedra optiky, PŘF UP Olomouc

Počet účastníků: 6 akademických a vědeckých pracovníků, 4 studenti

Program akce: During the scientific discussion the current trends in quantum metrology were discussed.

Stručný popis práce s cílovou skupinou:

- The scientific discussion was in particular dedicated to the possibility to improve estimation quality by the use of the non-classical states of light. It was pointed out that the advantage of using non-classical states is observed only in the regime of the energy constraints which is however typical in the gravitational wave detection as well as in the biophysics. In such regime non-classicality is helpful to achieve the fundamental precision bounds by the cost of the demanding state engineering.
- The possibility to improve the interferometric visibility in the idealized decoherence-free case was discussed considering different possible approaches such as Quantum Fisher Information (QFI) approach as well as Bayesian approach. The possible realistic extensions to quantum interferometry were considered in the regimes of phase diffusion and loss and the practical schemes being able to saturate the precision bounds were sketched out.
- The possible further research directions were discussed, which are in particular concerned with the channel estimation in the context of quantum communication with continuous variables, where the adaptive Bayesian approach may potentially be more effective than the QFI one especially when estimating the fluctuating optical media. The discussion thus was fruitful and contributed to the extension of knowledge of the audience of the modern trends in quantum metrology and estimation.

Příloha č. 1 – prezenční listina

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.