JOB OFFER

Position in the project:	Senior post-doctoral researcher
Scientific discipline:	Physics
Job type (employment contract/stipend):	Full-time employment
Number of job offers:	1
Remuneration/stipend amount/month *("X0 000 PLN of full remuneration cost, i.e. expected net salary at X 000 PLN"):*	Full renumeration cost: 15000 PLN Expected net salary: 9600 PLN
Position starts on:	1 January 2020 – 1 March 2020 (flexible starting date)
Maximum period of contract/stipend agreement:	24-43 months
Institution:	Jagiellonian University
Project leader:	Prof. dr hab. Marek Kuś / Group leader: Prof. dr. hab. Erik Aurell
Project title:	*Near-term quantum computers, optimal implementations and applications* **Project is carried out within the TEAM-NET programme of the Foundation for Polish Science**
Project description:	The group is established as a part the "Near-term quantum computers, optimal implementations and applications" (NISQ) project which has the goal characterize the computational power and to investigate possible practical applications of quantum computing devices consisting of a limited number of imperfect qubits. The Quantum Error Correction Group in NISQ aims at developing new techniques to cope with noise and imperfections affecting quantum systems from physically motivated interactions with realistic environments using techniques of statistical physics and open quantum systems. The goals of the group will evolve over time building on collaboration and synergies within NISQ, and the wider community. Current near- and/or intermediate-term objectives are to • estimate quantitatively the influence of non-harmonic baths on the dynamics of a quantum system, and translate this understanding into new global statements on errors in quantum operations; • develop and apply the theory of quantum large deviations to describe, predict and mitigate the effects of large and rare events in open quantum system dynamics; • develop quantum control processes which also take into account the disorder generated in the environment ("Landauer heat"); • analyze quantum thermal engines as analogues of imperfect quantum computational devices, and as means to produce intrinsically quantum resources e.g. entangled states in large quantities. The group will be led by Erik Aurell. Detailed research agenda, with the

	description of specific research directions that the group will pursue is available on https://nisq.eu/static/docs/aurell_agenda.pdf. NISQ is funded by Foundation for Polish Science. Within NISQ has been formed a network of four closely collaborating research groups, working on cutting-edge aspects of quantum technology. The other groups are: Quantum Computing Group, led by Michał Oszmaniec from Center for Theoretical Physics of the Polish Academy of Sciences (Warsaw), Quantum Machine Learning Group, led by Zbigniew Puchała from Institute of Theoretical and Applied Informatics of the Polish Academy of Sciences (Gliwice) and Quantum Resources Group, led by Kamil Korzekwa from Jagiellonian University (Kraków).
Key responsibilities include:	1. Active scientific research. 2. Presenting results at workshops and conferences. 3. Participation in mentoring of PhD and Master students. 4. Active role in setting up local and international collaborations. 5. Involvement in group activities (seminars, group meetings, etc.).
Profile of candidates/requirements:	PhD degree in physics, mathematics or computer science. Research experience in at least one of the following fields: • Open quantum systems • Quantum information theory, • Quantum computing • Statistical mechanics (non-equilibrium) Interest in quantum thermodynamics will be an additional benefit. Experience in mentoring and/or supervising students. Fluent spoken and written English. Jagiellonian University is an equal opportunity employer. For this position a candidate may have more than five years of academic work experience after obtaining PhD.
Required documents:	Applications should be submitted by e-mail to erik.aurell@gmail.com with the subject line "NISQ PostDoc 2019 Aurell". Applications should include: 1. Curriculum vitae (including a research record with a list of publications, talks and academic awards). 2. Research record with a list of publications, talks and academic awards. 3. Short motivation letter including the description of current research interests (max. 1 page). 4. Documents confirming the scientific degrees (copies of MSc and PhD diplomas). Shortlisted candidates will be invited for an interview. We expect that the interview will be held in second half of November in Kraków. Confirmation will be sent to the prospect candidates shortly after the application deadline. Questions should be emailed to: erik.aurell@gmail.com.
We offer:	1. Full time employment for 24 months with negotiable starting date (but not later than 1st of March 2020), possible extension for additional 12-19 months (subject to evaluation; a fixed ending date of the project is set to 30th of June 2023). 2. Gross salary: up to 15000 PLN/2800 EUR per month

	(expected after-tax salary: up to 9600 PLN/2250 EUR).
	3. Travel funds.
	4. Basic equipment and core facilities.
	5. Scientific and organisational support.

Please submit the following documents to:	erik.aurell@gmail.com The subject line should be marked line "NISQ PostDoc 2019 Aurell".
Application deadline:	08 November 2019
For more details about the position please visit (website/webpage address):	https://nisq.eu/static/docs/aurell_agenda.pdf
Euraxess job/stipend offer (in case of PhD, postdoc, leader and young leader positions):	https://euraxess.ec.europa.eu/jobs/452419

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, we also require that your job advertisements include a clause requesting the candidate's consent to the processing of his or her personal data by the institution which carries out the recruitment process.