



SCUOLA
NORMALE
SUPERIORE

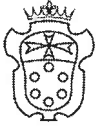
RELAZIONE ATTIVITA' ANNUALE DEI PERFEZIONANDI/DOTTORANDI – PRIMO ANNO
REPORT ON THE PHD ACTIVITY – FIRST YEAR

NOME E COGNOME NAME AND SURNAME	Farzad Kianvash
DISCIPLINA/PHD COURSE	Nanoscienze

CORSI FREQUENTATI CON SOSTENIMENTO DI ESAME FINALE ATTENDED COURSES (WITH FINAL EXAM)	VOTAZIONE RIPORTATA MARK	NUMERO DI ORE HOURS
Quantum Information I	28	40
Quantum Information II	Not determined	40
Theory of Many Body Systems	Not determined	40

CORSI FREQUENTATI SENZA SOSTENIMENTO DI ESAME FINALE ATTENDED COURSES (ATTENDANCE ONLY)	NUMERO DI ORE HOURS
Condensed Matter Physics	50

ALTRE ATTIVITÀ FORMATIVE (SEMINARI, WORKSHOP, SCUOLE ESTIVE, ECC.) – DESCRIZIONE OTHER PHD ORIENTED ACTIVITIES (SEMINARS, WORKSHOPS, SUMMER SCHOOLS, ETC) – DESCRIPTION	NUMERO DI ORE HOURS
International Iran Conference on Quantum Information 2018	4 days

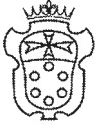


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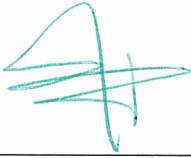
ATTIVITÀ DI RICERCA EVENTUALMENTE SVOLTA (MAX. 3.000 CARATTERI)
RESEARCH ACTIVITY (MAX. 3000 CHARACTERS)

Quantum No-Go Theorems and how to bypass them with Optimal Machines have had a significant importance since the beginning of Quantum Information Theory. My supervisor Prof. Giovannetti, my colleague Marco Fanizza and I, studied No Subtraction Theorem and the Optimal Subtracting Machine and its applications. The Optimal Subtracting Machine acts almost like the inverse of Incoherent Quantum adder which adds two density matrices with some probabilities. In fact, the Optimal Subtraction Machine is designed to subtract a density matrix from the other with high fidelity. We tried to find the optimal machine and the highest achievable fidelity. In our studies we found that such a machine should have a specific property namely being covariant. We studied covariant channels in general and found a general characterization for them. Then we made use of this characterization to find the optimal subtracting machine. We wrote a draft about this topic and currently we are correcting the draft.

EVENTUALI PUBBLICAZIONI
PUBLICATIONS (IF AVAILABLE)



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DATA	01/10/2018	FIRMA	
DATE		SIGNATURE	