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***Erasmus Mundus Joint Doctorate Programme***

***EXTATIC***

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| DOCTORAL CANDIDATE AGREEMENT |

# I. PREAMBLE

This Agreement, drawn up for the Communities’ Erasmus Mundus Programme (Decision No 1298/2008/EC (OJ 240 19.12.2008, p.83) of the European Parliament and of the Council of 16/12/2008 establishing a programme for the enhancement of quality in higher education and the promotion of intercultural understanding through cooperation with third countries (Erasmus Mundus)), governs the relationships between:

Erasmus Mundus Consortium of the Doctoral Programme in EUV and X-Ray Training in Advanced Technologies for Interdisciplinary Cooperation (EXTATIC) (agreement nr. 2012-0033)

Dublin City University, represented by Prof. Alan Harvey, Vice President of Research and Innovation and John Costello/Patrick Hayden, representatives of the EXTATIC consortium, School of Physical Sciences and National Centre for Plasma Science and Technology, Dublin City University, Glasnevin, Dublin 9, IRELAND. Hereafter referred to as “the Coordinator” and the “Doctoral candidate”. This agreement defines the academic, research, financial and administrative modalities of the doctoral candidate’s participation in the EXTATIC joint doctorate programme. The parties commit to comply with local rules and customary practices.

#### I.1. Doctoral candidate:

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| **Name: Ahmed Eid Hamed** |  | **Surname:Gaballah** |  |
| **Nationality: Egyptian** |  | **Date of birth**: 23/10/1986 |  |
| **EXTATIC Number :** | TBC | | |

The candidate’s work will have to be performed in at least two partner universities of the Consortium in different countries. Doctoral candidates are bound to comply with the regulations in force in the universities where they conduct research.

#### I.2. Supervisors

The following researchers jointly take full responsibility for the supervision of the candidate’s work and commit to fully assume their roles as joint supervisors and study directors.

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| **Supervisor 1** | **Home Institution** |
| **Name**: Prof. Piergiorgio Nicolosi | |
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| **EXTATIC partner:** Department of Information Engineering, University of Padova | |
| **Supervisor 2** | **Host Institution** |
| **Name:** Prof. Gerry O’Sullivan | |
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| **EXTATIC partner** [research unit/department, university]: School of Physics, University College Dublin | |

# II. ACADEMIC ISSUES

The candidate will work on the following thesis:

#### II.1. Thesis subject:

Indicative title of the thesis: EUV multilayer Optical Coating development

Subject [abstract]: Multilayer optical coatings are used to reflect with high efficiency EUV radiation at nearly normal incidence. These optical coatings are widely studied and applied in laboratory systems as well as in space experiments. A great effort is also made for EUV lithography of integrated circuits in order to improve the performances of electronic chips. The suitable design of multilayers has allowed for instance the development of samples for reflection of ultra-short pulses like those generated in HHG experiments, for the selection of FEL harmonics, for the optics in space experiments dedicated to solar spectral imaging.

The project will focus on the study of performances of ML for different application like filters and for the realization of EUV Gratings with specific efficiency characteristics.

#### II.2. Thesis work:

The doctoral candidate acknowledges that his/her research work is a full-time activity.

#### II.3. Duration of the thesis:

3 years starting from 1/11/2014 lasting until 30/10/2017

#### II.4. Language:

The thesis shall be written in the following language(s): English

When relevant, the doctoral candidate will provide additional executive summaries in English or Italian as per local regulations.

#### II.5. Academic training:

a. Scientific exposure:

The candidate has to participate in at least 2 conferences with an oral or poster presentation. The candidate also has to have one publication published or accepted in a peer reviewed high level international journal (ISI, Web of Knowledge journal).

b. Training courses

The candidate must take and pass at up to 30 credits of training courses (modules) of which: at least 10 credits in transferable skills and at least 10 credits in specialized research related training (i.e. Expert courses). Expert courses are considered as advanced, specialized courses which can relate to a specific application area. Transferable skills courses however are trainings, which are applicable to a broad area. Language courses are also considered as transferable skills courses.

#### II.6. Joint scientific activities:

Every year the EXTATIC network will organize one joint scientific workshop or related event whose attendance will be mandatory at least twice for the candidate. These workshops will include training courses contributing 10 credits. During these meetings associated members (from the HEIs and SMEs) will play a role, e.g., through entrepreneurship training or through their involvement in workshops.

#### II.7. Assessment of work progress

a. Doctoral Studies Panel

The work of the student is monitored by a doctoral studies panel. It will comprise the promoter and co-promoter of the thesis and at least one member who is independent of the EXTATIC consortium). This committee will evaluate twice a year the activity status of the doctoral programme of the candidate. The doctoral committee may suggest ways of improving the candidate’s (scientific) performance.

Constitution doctoral guidance committee:

1. Promoter: Prof. Piergiorgio Nicolosi, Department of Information Engineering, University of Padova

2. Member 2: Prof. Gerry O’Sullivan, School of Physics, University College Dublin

3. Member 3: Prof. Larissa Juskhin, Department of Laser Technology (ILT), RWTH University.

4. Member 4: Prof Giampiero Naletto, Department of Information Engineering, University of Padova

b. Duties of doctoral candidate

The doctoral candidate must prepare reports on his/her work in progress every year in September according to the EXTATIC Quality Assurance Scheme (QAS) presenting the preliminary results obtained. The report will be submitted electronically via the candidate online tracking/ mobility system. An overview of courses, seminars, conferences or other relevant activities that the candidate has attended/participated in will be provided. This report will yearly be presented to the EXTATIC Executive Management Committee.

c. Duties of supervisors

The supervisors shall ensure that the candidate is in the best possible situation to complete his/her work according to the foreseen plan. Supervisors will assess work in progress at least once a year, by jointly going over the reports prepared by their candidate. They submit a report on the candidate’s progress to the EXTATIC Academic Committee. The candidate’s performance will be measured against the milestones defined in the research project. In addition, supervisors will keep each other informed of the candidate’s progress on a regular basis.

#### II.8. Final examination

The thesis will be subject to only one examination (thesis defence), recognized by all degree awarding institutions. The thesis defence shall take place at University of Padova and will be governed by local rules. Supervisors shall be present at the defence if local rules permit.

a. Authorization to defend the thesis

Prior to the thesis defence, the doctorate candidate shall submit his/her work to the doctoral committee and have his/her work examined by at least two external rapporteurs for review. The rapporteurs shall analyse the thesis and assess it through a report submitted to the university hosting the thesis defence and to the doctoral committee. Authorization to defend will be granted by the university hosting the defence, which will set a date and call a jury respecting the rules of the degree awarding universities.

b. Composition of the jury

The doctoral studies panel will ensure that the composition of the jury complies with the local university regulations.

#### II.9. Diploma awarding

a. Type of degree

After successful completion of all requirements of the *EXTATIC Joint Doctorate* the candidate will be issued with a Doctorate Award (we will endeavour to ensure that this is a joint award from the relevant institutions). This will be defined in the *Co-tutelle agreement for each doctoral candidate*. As a form of acknowledgement each EXTATIC partner playing a significant role in the doctoral research including non‐Higher Education Institutes, will clearly be documented in the *EXTATIC Training Certificate*. Each candidate will be granted the title “PhD or Doctor” or equivalent as set by local rules.

b. Diploma Supplement

A complete Diploma Supplement is attached to the degree certificates. The Diploma Supplement describes the work performed to obtain the degree awarded. The purpose of this document is to facilitate recognition and accreditation of EXTATIC degrees when seeking employment and to make explicit the value added by the fact that the work of the candidate has been performed in the international environment of the EXTATIC joint doctoral programme.

#### II.10. Intellectual Property and Data policy

The Intellectual Property and Data treatment is dealt with in detail in the Co-tutelle Agreement between the Main Partners involved in the EXTATIC Doctoral Training of the Candidate. The Co-tutelle Agreement takes precedent over the EXTATIC Doctoral Candidate Agreement. The doctoral candidate hereby agrees that his/her thesis essay’s title and abstract will be posted on the EXTATIC website when his/her degree is awarded. The doctoral candidate hereby agrees that the degree awarding universities may store and protect the thesis, either as a hardcopy or as a softcopy following their respective procedures. Moreover, the doctoral candidate will be asked to sign a disclosure contract that will allow the EXTATIC network and e-libraries to make his /her thesis available to the research community. The doctoral candidate will assign all Foreground Intellectual property to the host institution where it was developed.

The disclosure contract will not be deemed as a copyright transfer. The copyright of the candidate’s work belongs to the author and will thus be protected by intellectual property law. The doctoral candidate hereby agrees that his/her data collected in the framework of the thesis fall under the regulations of the EXTATIC data policy (in appendix). Moreover, the doctoral candidate will be asked to sign a specific data policy document.

### III. ADMINISTRATIVE ISSUES

III.1. Candidate’s status

While performing work during the PhD period (II.3), the candidate will benefit from the employment contract issued by University of Padova .

III. 2. Duties of partner institutions

The candidate shall be a full member of the research entity in which he/she performs work. As such, the candidate shall be assisted with incoming procedures (visa, permits, housing, insurance, access to a bank account) and will be granted the means necessary to conduct research (research facilities, libraries, computing facilities). The EXTATIC Consortium will through the secretariat and the host institutes make sure that the candidate subscribes to proper medical care, personal liability insurance policies, and checks that these are effective and also cover for mobility and transition periods. The Consortium helps the candidate planning and organizing his/her mobilities.

IV. FINANCIAL ISSUES

IV.1 Source(s) of funding and payments to the candidate

a. Sponsors

The candidate’s work will be funded through the following entities:

Total Value of Scholarship funded by ERASMUS MUNDUS: € 129900

b. Payment of salary/stipend

Over the period from 1/10/2014 to 30/9/2017, the candidate will receive a monthly salary following the details set in the issued employment contract.

c. Additional support

In addition to the salary, candidates need to ensure the required means to participate to the EXTATIC

programme. Participation costs are set at 7200 € per year.

The budget will be foreseen by [ERASMUS MUNDUS CONTRIBUTION/OTHER].

From this 7,200 euro, the EXTATIC Executive Management Committee will make a deduction that will be used for the establishment of the EXTATIC fund. The remainder (the candidate’s bench fee) will be paid to the home institute (institute of the promoter). The doctoral guidance committee, installed for each doctoral candidate, will ensure proper use of this money, meaning that all costs related to the requirements of the doctoral programme will be paid from this budget. In case the costs exceed the annual budget of 6,700 euro, the promoter ensures that other budget is available for the research to be performed (e.g. contribution to selected research projects).

d. Candidate’s bank details

All above-mentioned amounts, unless stated else, if due by any of the Consortium’s partners, shall be transferred on the bank account mentioned in the financial identification form attached. The doctoral candidate is responsible for submitting the correct data concerning his/her bank account to their home institution. If the bank account details appear to be wrong, subsequent bank fees will be charged to the candidate. The Consortium may stop the (monthly) payments after adequate warning, in case the candidate:

* moves away from the above mentioned research project without the doctoral committee’s approval;
* misses participation in the mandatory programme’s activities;
* fails to present satisfactory progress reports;
* makes unsatisfactory progress, or does not comply with the usual rules of conduct implicit in his/her registration at the institution;
* fails to fulfil her/his obligations.

## V. MODIFICATION, MEDIATION AND CANCELLATION

It is the signatories’ responsibility to inform in writing the EXTATIC Coordinator of any changes this agreement may need. The doctoral committee shall be informed of any amendment. If one of the supervisors changes, or if a major change in the candidate’s research project seems necessary – such as an extension of the duration or a major change in the topic, then a new agreement must be drawn up requiring the consent of the doctoral committee. The contract may be cancelled if the candidate does not fulfil the scientific requirements and other obligations set out in the agreement. All changes in the financial conditions have to be brought to the attention of all parties to the present agreement, who shall work collectively towards warranting the doctoral candidate the best possible conditions under the existing constraints. Once these (new) conditions have been determined, they will have to be included into an amendment of the present agreement. In the event of minor changes to this agreement, an amendment may be proposed by the party concerned and incorporated to the agreement as an annex signed by all parties. Any breach of contract by the doctoral candidate may lead to the cancellation of this agreement. Any conflict among the parties signing this agreement should be brought to the attention of the EXTATIC programme’s coordinator, who shall initially seek to resolve it in collaboration with the doctoral guidance committee.

This agreement is not complete without the following annexes:

* annex 1: European Charter for Researchers and The Code of Conduct for the Recruitment of Researchers
* annex 2: EXTATIC data policy

The EXTATIC Secretariat is responsible for the formalization of the agreement upon the candidate’s arrival. A signed copy of this agreement will have to be stored at the Secretariat.

Signatures:

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| The candidate | Supervisor 1 | Supervisor 2 | The EXTATIC coordinator |
|  |  |  |  |
| Ahmed Eid Gaballah | Piergiorgio Nicolosi | Gerry O’Sullivan | Print Name |
| Date: | Date: | Date: | Date: |