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FACULTY OF SCIENCE
DEPARTMENT OF PHYSICS
23 December St. Port Said, Egypt

**Application to apply for PhD Fellowship at University of
Rochester**

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Recommendation letter for Ms. Sara Ahmed Morsi Esmail Ali

13 December 2022

Dear Sir/Madam

I am pleased to write a supporting letter for Ms. Sara Ahmed Morsi Esmail Ali. I met Ms. Sara in September 2012, when I taught to her a first course “Electricity and Magnetism” in the Faculty of Science, Port Said University. Later, she was interesting to join department of physics as undergraduate student. During the next three years, I taught her many courses thermodynamics, mathematical physics, quantum mechanics, plasma physics, and statistical physics. In the fourth year, I acted as examiner for her essay in plasma physics. I realized that she had obviously done very exhaustive reading and literature research in the area of plasma physics. This was reflected from her questions during our discussions. She was the first ranking in her group and she worked as demonstrator permanent position in our department.

Ms. Sara asked me to register her MSc under my supervision. At that time, she obtained his BSc in applied physics, while I am working in theoretical plasma physics. Therefore, I cannot accept her request unless I made several exams and close discussions with her (both in physics and in mathematics). I gave to her some fundamental books in plasma physics and mathematics. Actually, she passed all the exams successfully. She was full of enthusiasm, passion, and had obviously done very exhaustive reading and literature research in the area that she decided to take up. This was reflected in the stream of probing questions that she asked at all discussions. After 6 months, I did not hesitate to accept her as member of my research group at Port Said University. She was studying master degree and I was her supervisor. Her master program is in theoretical and numerical plasma physics. The title of her MSc is “Dynamical behavior in plasma and its effect on nano-structure properties”. The aim of the MSc is to use plasma as a suggested approach to explain the formation of surface nanostructures in LiNbO_3 material. The results from her MSc were published in Results in Physics, 15, 102696, 2019, Physica Scripta, 95, 095602, 2020, and Periodicals of Engineering and Natural Sciences, 7, 881, 2019. Indeed, her potential in MSc

is very high to publish three papers in well-known journals. Therefore, I do not scruple to recommend her application to perform her PhD abroad.

Because of her potential activity, I did not hesitate to include her as a part of my group in a project between Port Said University and Ruhr-University Bochum Germany funded by Alexander von Humboldt foundation. The project started in January 2020 till December 2022. Based on a research visit in this project, Ms. Morsi spend five months at Ruhr-University Bochum from August-December 2022. PD Dr Horst Fichtner is her host. During her stay, she perform new manuscript about the existence of nonlinear waves in Venus ionosphere.

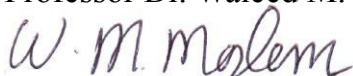
As a part of my group scientific activity, I organize annual Spring Plasma School at Port Said funded by the British University in Egypt, Alexander von Humboldt foundation Germany as well as ICTP Italy. We started up this school in 2016 till now. In April 2016, Ms Morsi participated in the 1st Spring Plasma School at Port Said and she got a lot benefits from the discussions with many scientists. In 2017 till 2022, she became one of the organizers in this school. These activities reflect her scientific interest to wide her knowledge in the field of plasma physics. I noticed that she interacted successfully with the participants and she discussed with them in different topics. Recently, in August 2022 I organized an intensive course in plasma physics that held at the British University in Egypt. The number of participants were about 40 students from more than 15 university in Egypt. Ms. Sara was one of my team to solve problems and helping the participants.

Actually, her ability to learn increases gradually since she is interested in reaching the uniqueness in her study, which is reflected from her interest to participate in the international activities in Ruhr University Bochum and Port Said University. During this period, I realized that Ms. Sara has good potential to work and she has considerable amount of knowledge in her age bracket.

On closing, please accept my appreciation for giving me the opportunity to **strongly recommend and endorse** the application of Ms. Sara Ahmed Morsi Esmail Ali to join your group. I have no doubt that Ms. Sara will excel in her career as a researcher and educator as well as I believe that she will be a successful candidate.

I remain at your disposal, should further assistance be needed. I will be very glad to hear positive confirmation about the acceptance of Ms. Sara Ahmed Morsi Esmail Ali application.

Kind regards,
Yours sincerely,
Professor Dr. Waleed M. Moslem



Alexander von Humboldt Fellow – Germany (2006-2008, 2012, 2014, 2018, 2022)
Arab Fund Fellowship Special Program, Kuwait-Germany (2011-2012)
at Ruhr University Bochum, Germany