



UNIVERSITA' DEGLI STUDI DELL'INSUBRIA

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Como, 10th September 2017

To Whom it may concern

Review of the Doctoral Thesis titled
CHEMILUMINESCENCE DETECTION USING SILICON
PHOTOMULTIPLIERS IN STATIONARY AND MICROFLUIDIC SYSTEMS

presented by MATEUSZ BASZCZYK, M.Sc.

The thesis submitted by the Candidate has a focus on instrumentation & methods for the detection of chemiluminescence by biological samples, a relevant technique with a broad range of applications. The performed activity aimed at completing a proof of concept based on the use of Silicon Photomultipliers, paving the way for the design and engineering of a cost effective, portable device.

I do believe it is a thesis of very high standing. The Candidate proved to have the capability to analyse a complex experimental situation, identify the relevant and critical figures, turn them into a series of specifications, address the key issues in the development, design a solution, qualify it, commission it, evaluate alternatives and draw quantitative and qualitative conclusions. A comprehensive and holistic approach confirming the high quality and maturity of the Candidate.

To be more specific, I did appreciate the level of details and the accuracy in the description of the ASIC design flow and the identification of the different approaches to the quantification of the chemiluminescence level. Each possible solutions was qualified a priori and evaluated experimentally in a clear and rigorous way.

The originality and value of the proposed solutions are also confirmed by the scientifica papers published on journals with peer reviews having the Candidate as co-auhor.

The bibliography is comprehensive and useful for the interested reader to learn more.

I have a series of minor questions and details I would be honoured to discuss during the defence but, to conclude my analysis, I would rank this thesis at very high level and I would have no doubts that the Candidate shall be awarded a Ph.D. Degree.

Best regards,

Massimo Caccia

Professor

Coordinator of the graduate school in Physics & Astrophysics
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