AMENDMENT 3

QUESTIONS AND ANSWERS

Q25. Could you please elaborate the wording in the essential outcome point 3 - "Demonstrate that PL variations are non-stochastic below ± 5 nm." ?
Is this a question of prediction performance (accuracy) or interpretability?

A25. This is a question of prediction performance. The goal at the end of phase 2 is to obtain a model that can be validated to within +- 5 nm for new data. Phase 1 must demonstrate that this is possible.

Q26. Is there any documentation where we can find information regarding the current models used and the current fabrication process? And is it possible to see an example of the data to be used, especially the MOCVD recipe parameters, PL maps, structure parameters, and X-ray diffraction profiles. A few examples of the text files mentioned in the challenge description. These are important to help us determine the possible machine learning approaches applicable to this challenge and provide you with a good technical proposal and help us answer questions related to the project plan, risks and advances to the state of art.

A26. An example of the data is included with these answers. An example of a model we use to calculate the composition of a single layer is also included. A good reference for semiconductor parameters and models is the Ioffe institute NSM archives and the references contained within (http://www.ioffe.ru/SVA/NSM/Semicond/).

To calculate a MQW structure PL, an in-house model based on the k.p method is used. A good reference on such models is “Theory of semiconductor superlattice electronic structure”, by D.L. Smith and C. Mailhiot, https://doi.org/10.1103/RevModPhys.62.173 .

A good reference on the MOCVD process is “Organometallic Vapor-Phase Epitaxy: Theory and Practice”, by G.B. Stringfellow.