

Integrating the DEgg QE into simulation

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Retrieving the DOM efficiencies

Chiba University

Graduate School of Science and Engineering

Master's Thesis

**Detection efficiency of next
generation IceCube optical
module, D-Egg, and its
sensitivity to optical
properties of the Antarctic
ice with the GEANT4 based
precise photon simulation**

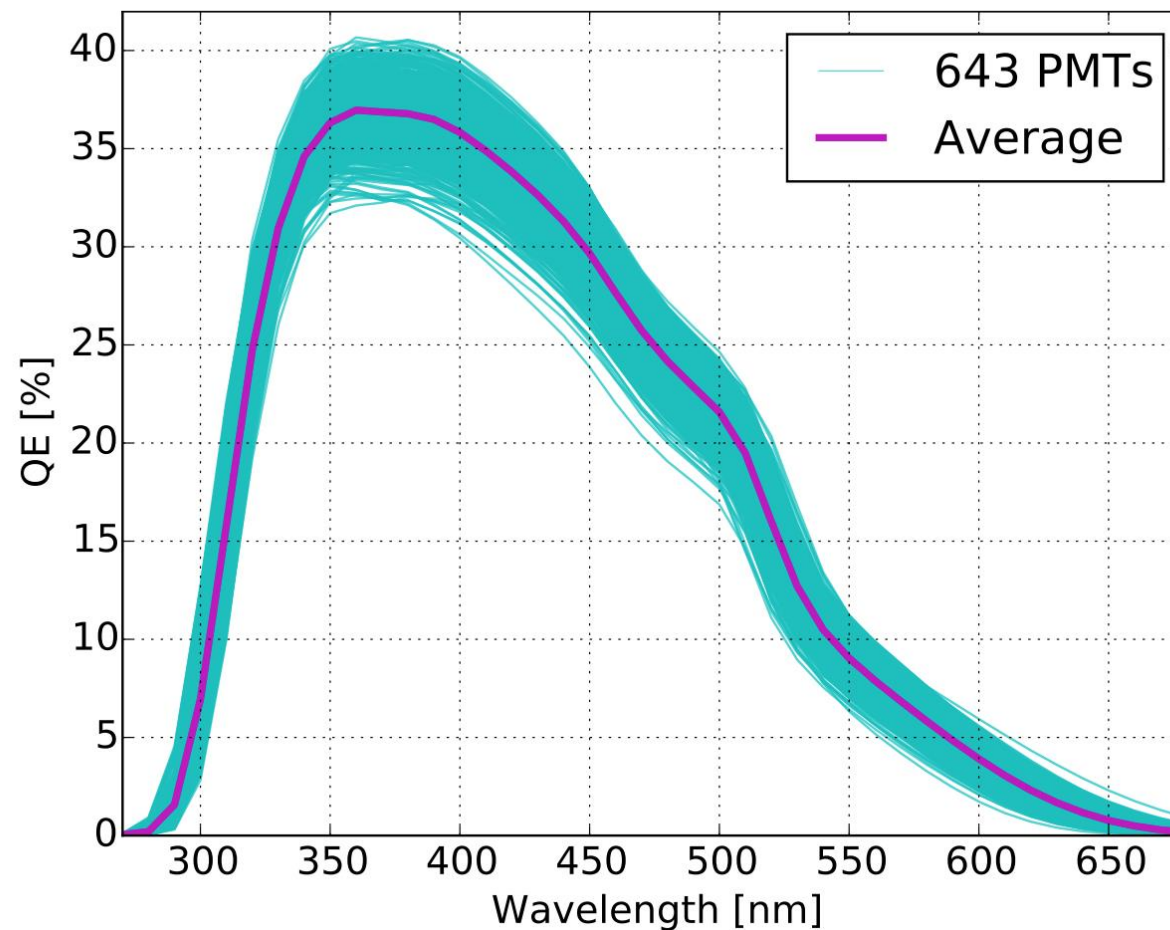
Submitted in March, 2020

Division of Advanced Science and Engineering

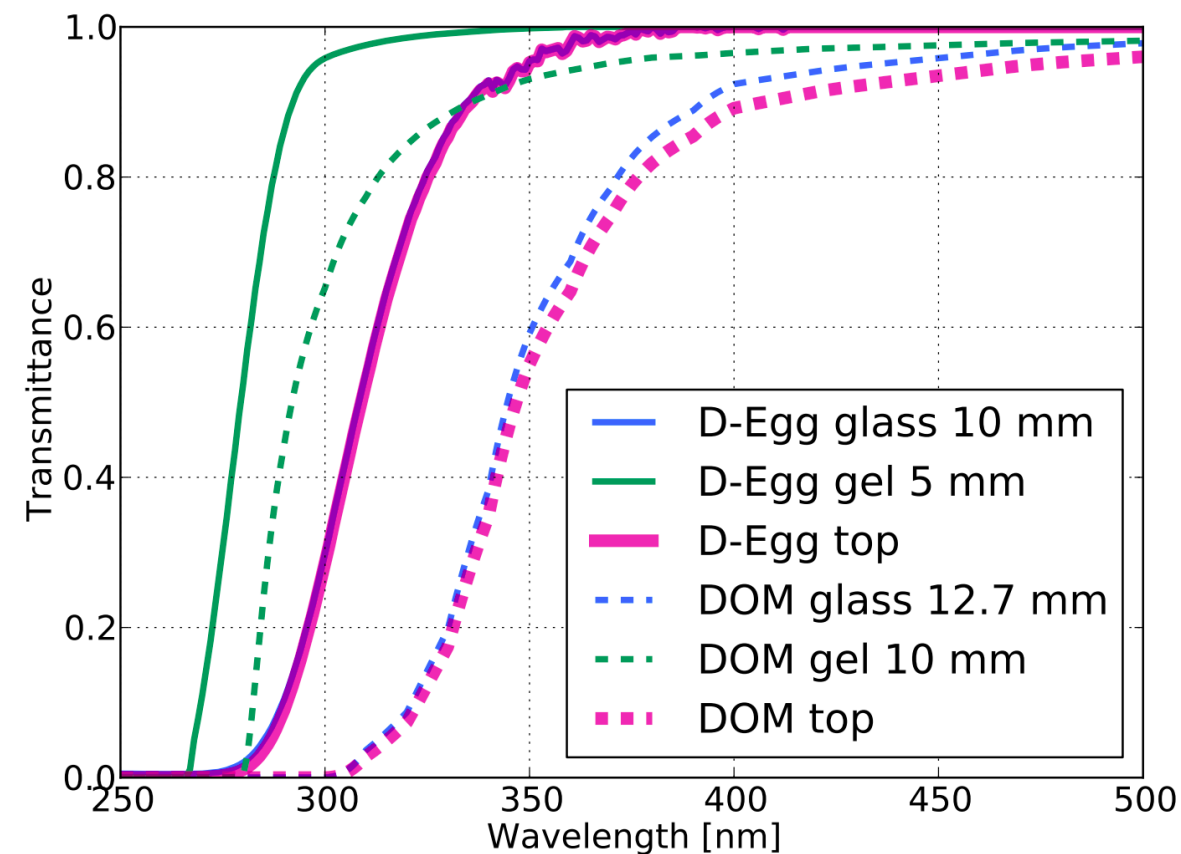
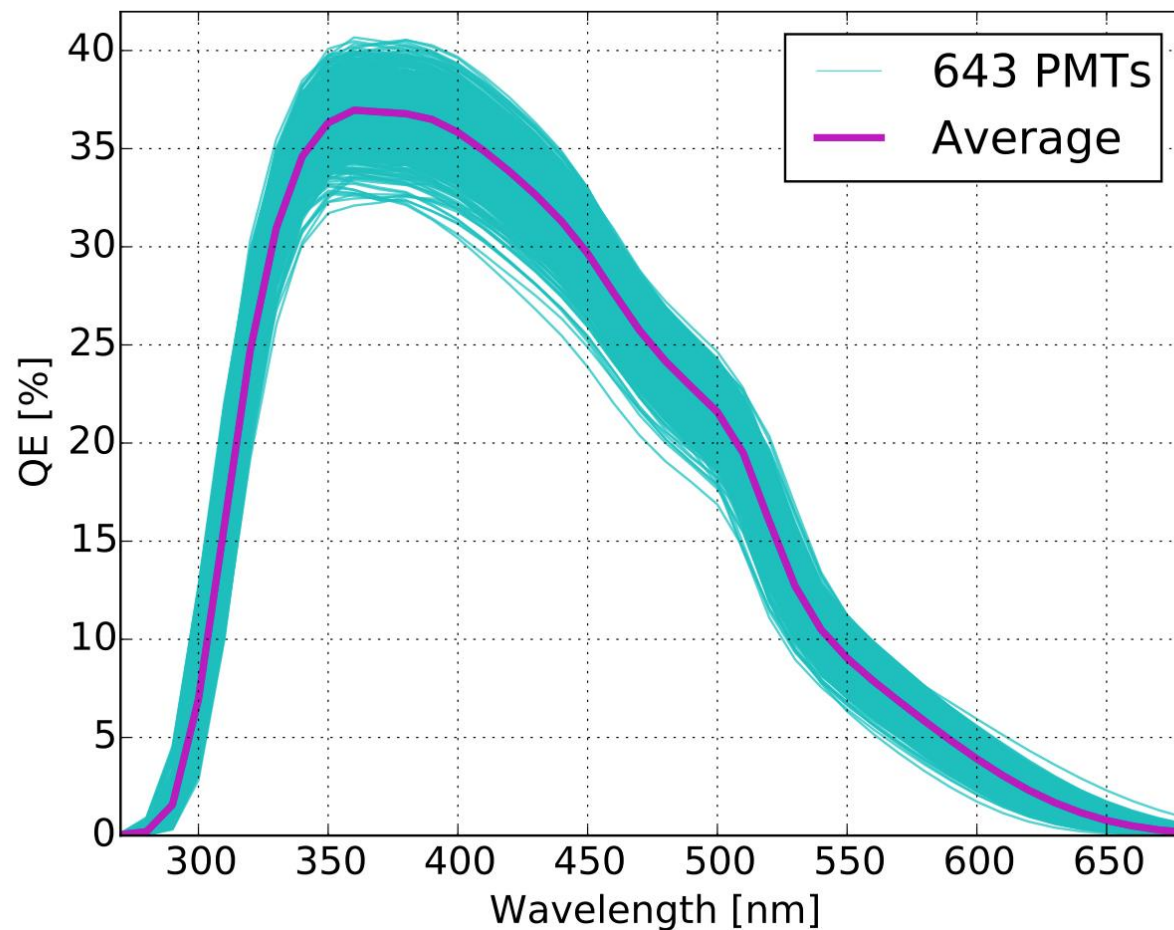
Department of Physics

Ayumi Kiriki

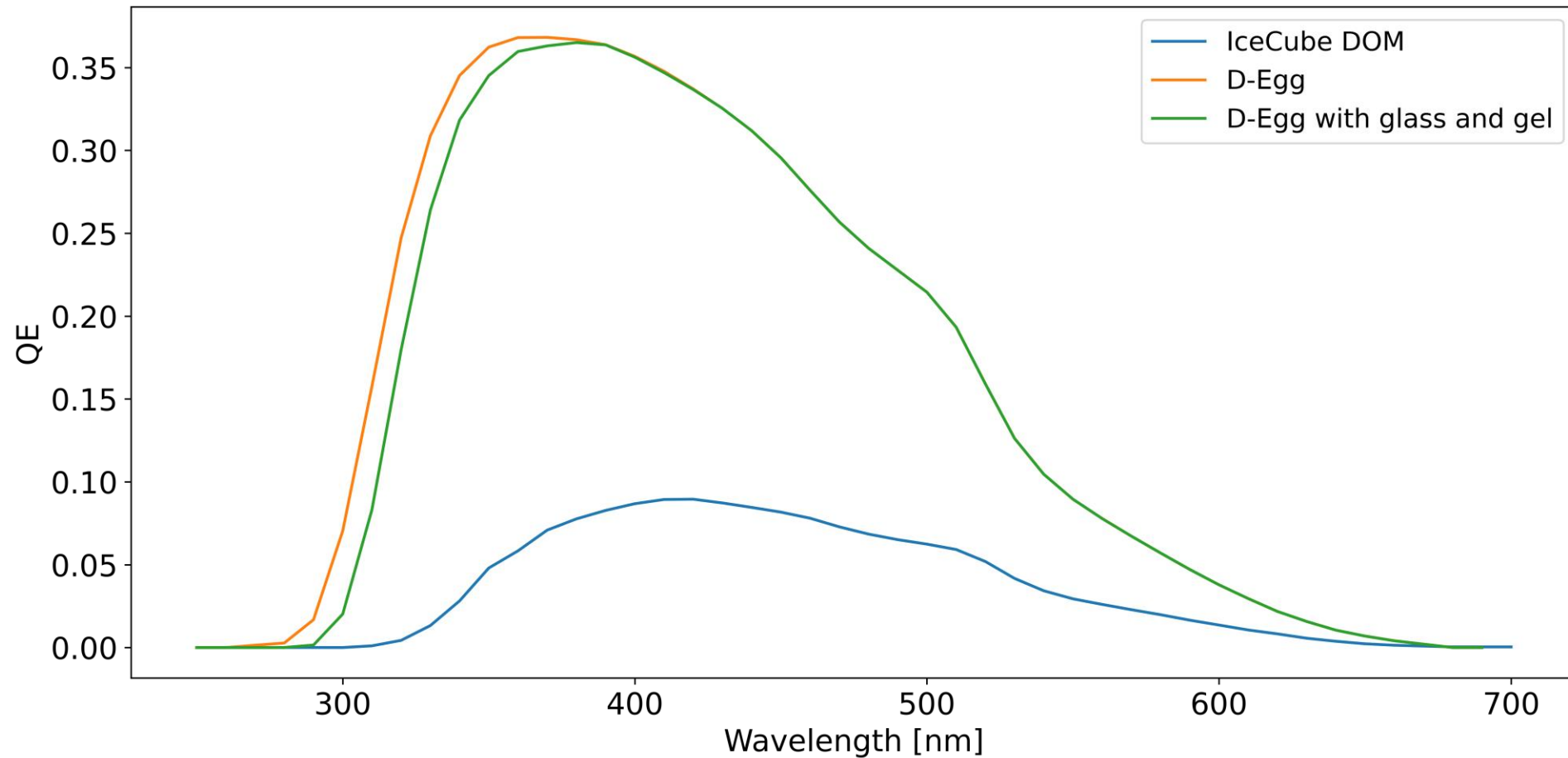
Retrieving the DOM efficiencies



Retrieving the DOM efficiencies

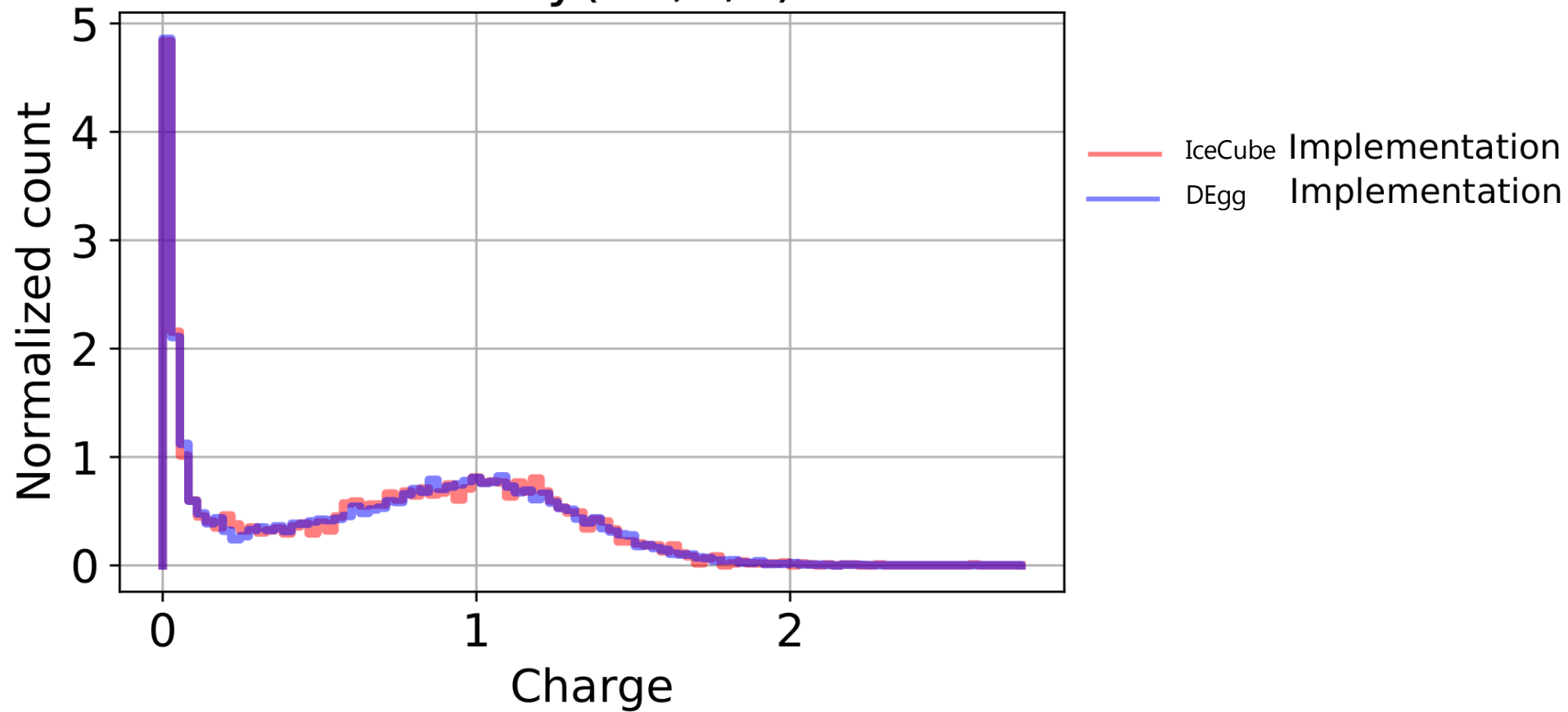


The DEgg efficiency compared



Comparing simulation outputs - MCPulse Charge

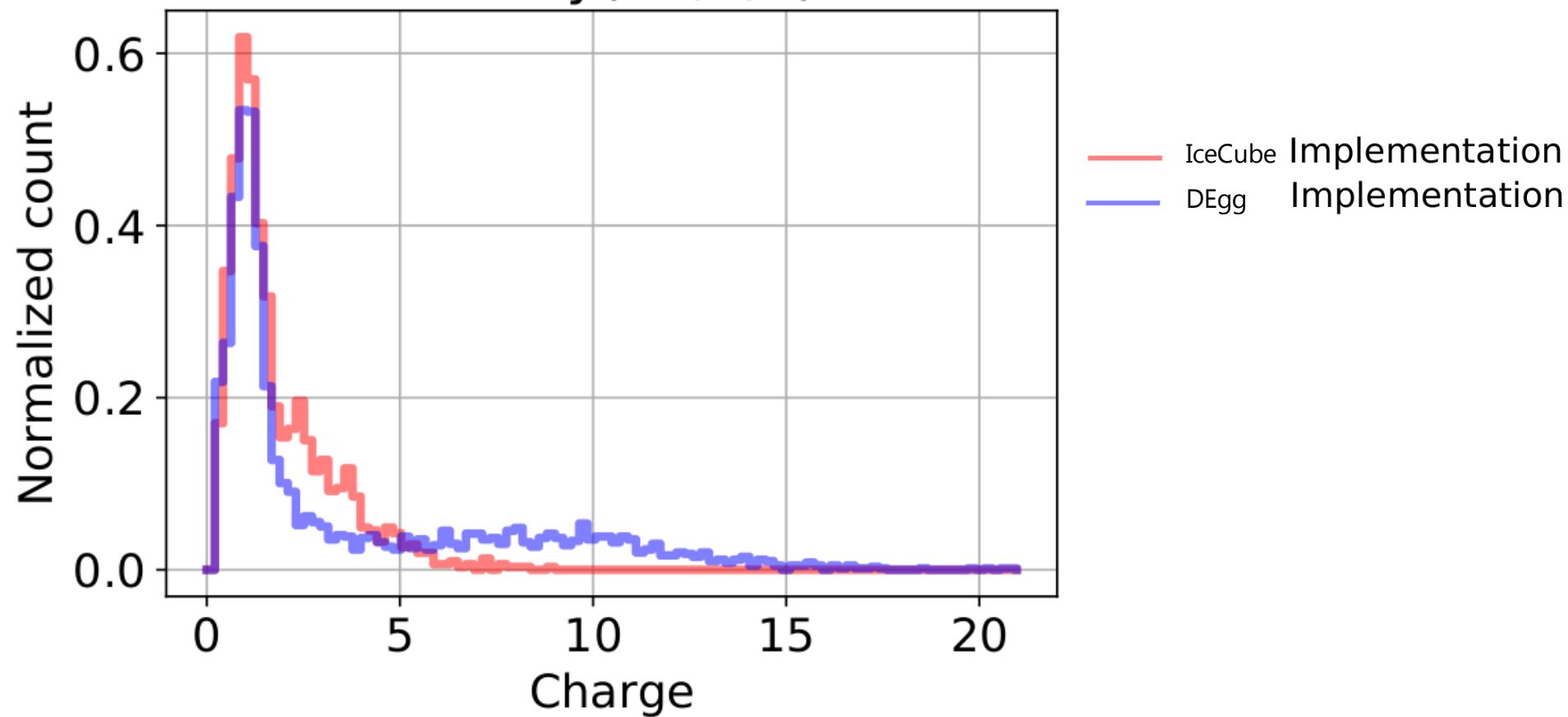
OMKey(87,1,0)



Comparing simulation outputs

- SplitInIce Charge

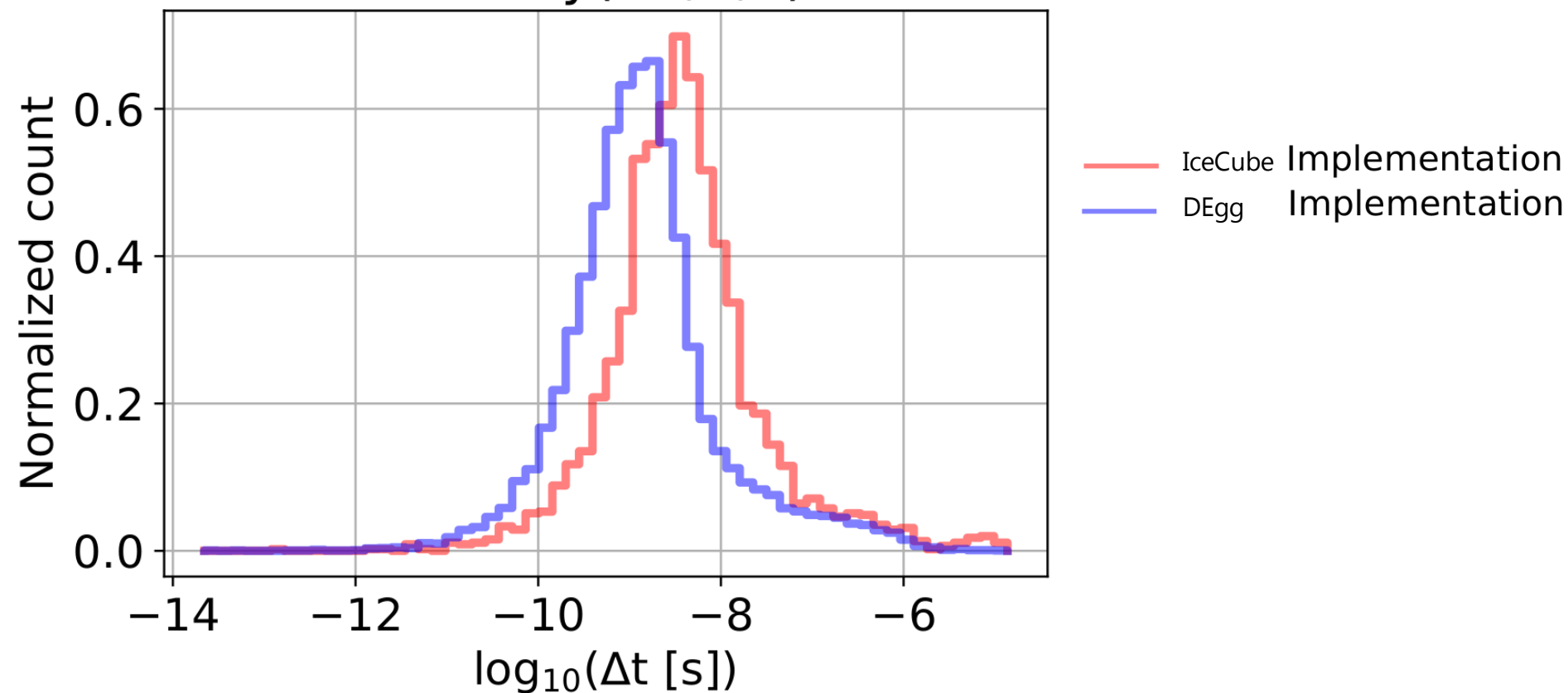
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Comparing simulation outputs

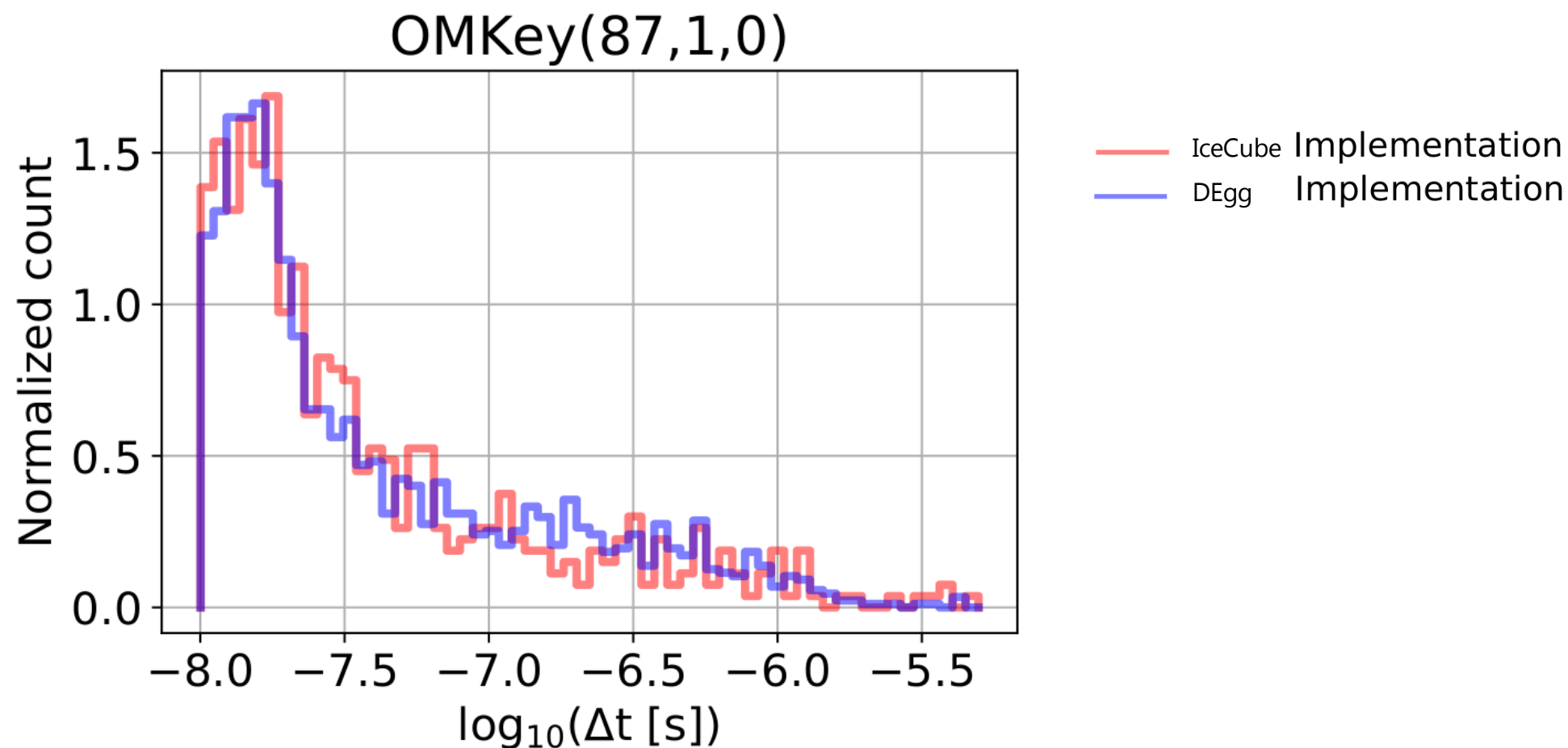
- MCPulse dt

OMKey(87,1,0)



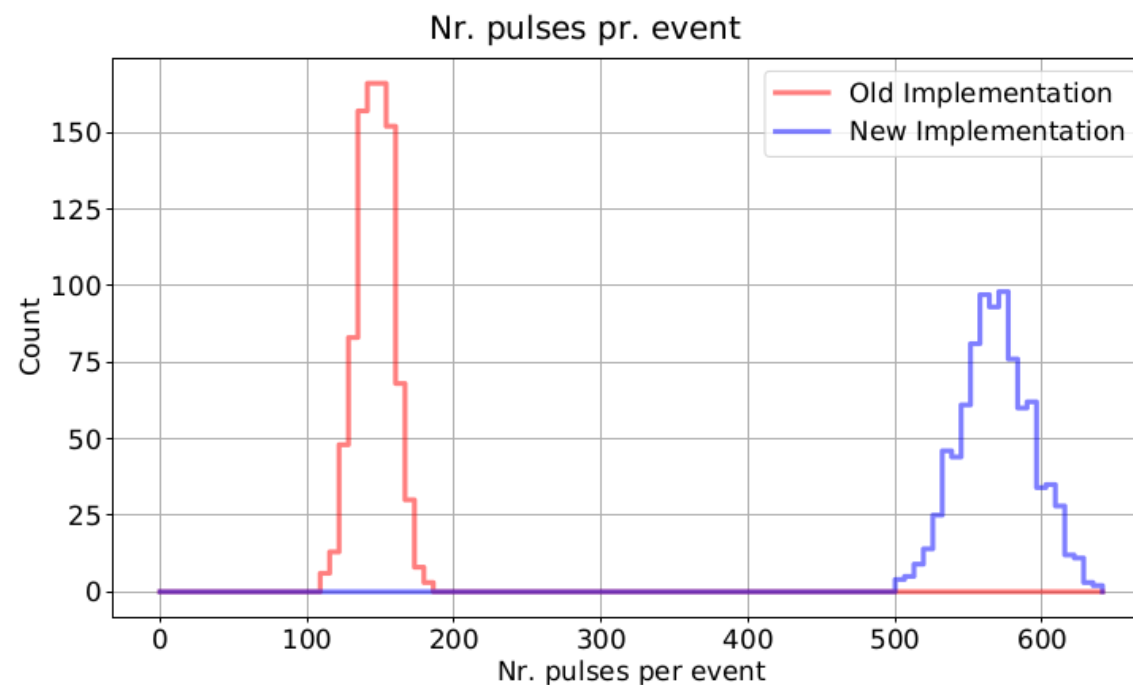
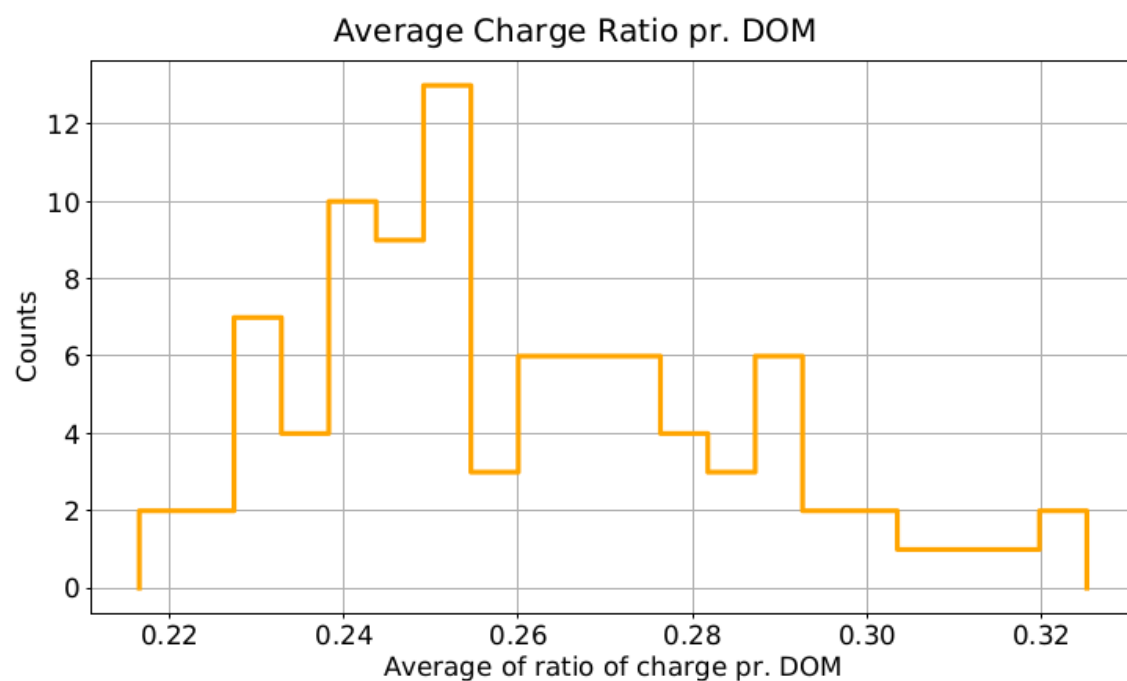
Comparing simulation outputs

- SplitInIce dt



How much better?

- MCPulse



How much better?

- SplitInIce

