Week 1: 6/10/2021 – Wednesday

1. **Outline of meeting and tasks**

Meeting with supervisor, Dr. Simon Doyle, on Zoom to discuss the details of the project and to give a brief introduction to the project along with people related to the research such as Dr Sam Rowe and Dr Tom Brien who are part of the research team for this project topic and will assist me.

A brief introduction to the project was provided. In this project, we will be working on understanding the principle of superconductivity and its microwave properties, understand how superconductivity principle can be applied to create a kinetic inductance detector (KID) and thus using the above knowledge to characterize a detector array. The real-world application of the detector would be in an SFAB airport security camera. The reading material provided is Dr. Simon Doyle's Thesis titled "Lumped Element Kinetic Inductance Detectors"

The inductance of a superconducting material forms the operating basis of the detector, hence the name Kinetic Inductance Detector. As such, the task for this week consists of going through the topics related to the theory of superconductivity and how the kinetic inductance of a material can come about due to it. The recommended literature for this is the thesis mentioned above from Chapter 3.1 to Chapter 3.4, page 13-25.

2. **Notes and Materials Covered**

Not much was covered in terms of project material. General introductory session.