**QuarkNet workshop 2020**

**Modeling random processes**

**Tuesday, July 7**

**Morning**

9:15 – 9:30 AM: Zoom connection, registration and profile update

9:30 – 10:00 AM: The physics of particle decays (Phil Baringer)

10:00 – 10:30 AM: Math of exponential decay, radioactive half-life (Phil Baringer)

10:30 – 11:00 AM: Break for homework assignment

Homework: 1) How do you get the concept of half-life across in the classroom for different math levels? 2) Choose a particle and look up its lifetime. (see pdg.lbl.gov) What are the physics reasons for that lifetime?

11:00 AM – Noon: Discussion of homework and the morning’s topic (All)

**Afternoon**

Noon – 1:00 PM: Lunch break

1:00 – 1:30 PM: Jupyter notebook setup (Jim Deane)

1:30 – 2:10 PM: Using random numbers to model physical processes (Graham Wilson)

2:10 – 3:00 PM: Simulation of exponential decay (Graham Wilson)

3:00 – 3:30 PM: Online office hours

Homework: Carbon dating exercise and prepare for tomorrow afternoon’s Share-athon on online teaching

**Wednesday, July 8**

**Morning**

9:15 – 9:30 AM: Zoom connection

9:30 – 10:00 AM: Debrief on Day 1 (All)

10:00 – 10:45 AM: Modeling games of chance: basketball, pandemics, elections (Graham Wilson)

10:45 – 11:00 AM: Break

11:00 AM – Noon: Electoral College Simulator (Graham Wilson)

**Afternoon**

Noon – 1:00 PM: Lunch break

1:00 – 2:30 PM: Share-athon on online teaching (moderated by Jim Deane)

2:30 – 3:00 PM: Wrapup, survey (All)