**2025 QuarkNet Workshop @ University of Illinois - Chicago**

**Monday, August 4, 2025 - Introductory/Opening Activities/Master Class**

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| **09:00** | Opening Session   * Welcome * [Registration](https://www.google.com/url?q=https://forms.gle/XhK3JsRU7iCNpvUp8&sa=D&source=editors&ust=1754278522646119&usg=AOvVaw3XTYhZ-9Xxr4REmczsiryp) & Sign-in * Safety, bathrooms, other needs * Norms, [APS STEP UP poster](https://www.google.com/url?q=https://engage.aps.org/stepup/curriculum/resources&sa=D&source=editors&ust=1754278522646512&usg=AOvVaw3fBXDc2FcDUhncvZHxopTd) * QuarkNet news & updates * Workshop “Parking Lot” |
| **09:15** | Master Class   * International masterclass training   + Teacher: logistics of how to set it up   + [Teacher orientation](https://quarknet.org/mc-orient) |
| **11:30-12:30** | **LUNCH** |
| **12:30** | * [Student preparation](https://quarknet.org/mc-prep)   + [Particle deck](https://quarknet.org/sites/default/files/content/portfolio/file/2024-01/particle_cards_tchr_05jul2019.pdf) ([cards](https://quarknet.org/sites/default/files/content/portfolio/file/2024-01/ParticleCardsEng_1.pdf))   + [What are neutrinos? Inquiry](https://neutrinos.fnal.gov/) ([slides](https://docs.google.com/presentation/d/1r-x7HnONABMqPnH3EcWvNmm7dC3Sjg27NP88GcaDIR8/edit?usp=sharing))   + [The case of the hidden neutrino](https://quarknet.org/data-portfolio/activity/case-hidden-neutrino) ([data](https://quarknet.org/sites/default/files/content/portfolio/file/2024-01/DZero_events.pdf))   + [Intro to coding](https://colab.research.google.com/drive/1u7uOePDCGgCEObTcxJdxeHoDCc16JwmU?usp=sharing), [CMS coding warmup](https://colab.research.google.com/drive/1KI1xYeET5GoFMOORKp797hd3Rs3FTg_f?usp=sharing)   + [Practice data collection](https://quarknet.org/mc-data)   + [Research using coding activity](https://quarknet.org/data-portfolio/activity/research-using-coding) (if time allows) |
| **14:45** | Classroom transfer  Check Parking log  Sign-out |
| **15:00** | END for the day |

**Tuesday, August 5, 2025 - Cosmic Ray**

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| **09:00** | Morning Session:   * Sign-in * Opening Discussion |
| **09:10** | CME work (MS)   * Read reviewer feedback * Determine revisions to be made * Review data * Make revisions * Read revised draft * Submit? * Determine next research steps * New (non-author) students: continue data analysis |
| **10:30** | **BREAK** |
| **10:45** | Continue CME work |
| **11:45** | **LUNCH** |
| **12:45** | Mexico Pyramid presentation (MA) |
| **13:45** | Recurrent novae inquiry, T Coronae Borealis (MS)  Split into groups to research the following questions, create a slide, and then share out   * What is a recurrent nova? * What is T Coronae Borealis? Where is it? How will its appearance change when it goes Nova? * When will T Coronae Borealis go nova? * Hypothesize how TCB will affect muon flux * What scientific literature already exists on how a recurrent nova will affect muon flux? |
| **15:00** | END for the day |

**Wednesday, August 6, 2025 - Cosmic Ray**

| **09:00** | Sign-in   * + Japan group Discord update   Opening Discussion |
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| **09:10** | Detector maintenance (NU)   * Desirable supplies * Labeling detectors * Calibrate Barometers * Update geometry * Plateau counters |
| **11:15** | **Lunch** |
| **12:15** | Radio background (MA) |
| **13:30** | * Experiment   + Separation distance? Radio? Collect data   + report results   + Reassemble detector for continued background data collection |
| **14:50** | Review of the day and plan Thursday |
| **15:00** | END for the day |

**Thursday, August 7, 2025 - Cosmic Ray**

| **09:00** | Sign-in  Opening Discussion |
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| **09:10** | **Introduction to the QuarkNet Cosmic Ray Muon Detector (CRMD), (NU)**  **Links in** [**QNet Workshop 2025**](https://drive.google.com/drive/folders/1N31siEKcxRq3ghc3iFpD9VCmutFJcD0q?usp=sharing) **- the shared folder** |
| **10:15** | * Implementation planning ( Marybeth)   + Students- this part will probably not be interesting for you   + If a teacher did NOT complete the Full Teacher Survey anytime in 2023 or 2024, then complete The Full Teacher Survey. [https://www.surveymonkey.com/r/7NXRLK3](https://www.google.com/url?q=https://www.surveymonkey.com/r/7NXRLK3&sa=D&source=editors&ust=1754278522683505&usg=AOvVaw0izeXOuHjQ74BBKy7BkLNd) We ask that an individual teacher complete this only once in 2024. Plan for ~15-20 minutes here |
| **11:30** | **Lunch** |
| **12:30** | Relativity made simple (NU and MA) |
| **14:30** | **Clean up** |
| **14:45** | Review of the day and workshop |
| ???? | Quick 2 Question Workshop Evaluation - [Link](https://www.google.com/url?q=https://docs.google.com/forms/d/e/1FAIpQLSfHtDQw_0ib93Nbw1758yNGh3j7GW3pZjqYViZ-Ye8_Zxl0-Q/viewform&sa=D&source=editors&ust=1754278522684341&usg=AOvVaw3AEcXUpkIICk-uDmenKW2b) |
| **15:00** | END of Workshop |

**CR Resources:**

* [Nate’s Cosmic Workshop folder](https://www.google.com/url?q=https://drive.google.com/drive/folders/1N31siEKcxRq3ghc3iFpD9VCmutFJcD0q?usp%3Dsharing&sa=D&source=editors&ust=1754278522686479&usg=AOvVaw25LEcS9FGRwyoNR0Tqqlsy)
* Poster site: [https://www.posternerd.com/](https://www.google.com/url?q=https://www.posternerd.com/&sa=D&source=editors&ust=1754278522686801&usg=AOvVaw0FW9YC3jXHwCKmLJpBWktC)