

## Welcome to the 2024 Bmad Workshop!

***Important: Please complete the Bmad installation instructions at the end of this email prior to the workshop start!***

### **Coursework:**

The goal of this workshop is to introduce you to Bmad and give you a hands-on experience constructing a colliding beam storage ring, simulating long term tracking, optimizing the dynamic aperture, etc. The Bmad web site is at:

[www.classe.cornell.edu/bmad/](http://www.classe.cornell.edu/bmad/)

The school indico page is at:

[indico.classe.cornell.edu/event/2433/](http://indico.classe.cornell.edu/event/2433/)

There will be a step-by-step workshop tutorial accompanied by introductory lectures to each topic. You will work through the examples of this tutorial in class, with one-on-one support. The workshop tutorial will be posted before the workshop starts. If you want to get a head start, there is the "Introduction and Tutorial to Bmad and Tao" which can be obtained at:

[www.classe.cornell.edu/bmad/manual.html](http://www.classe.cornell.edu/bmad/manual.html)

and click on the "tutorial\_bmad\_tao.pdf".

Each day will start at 9am, with a coffee break at 10:30am and a lunch break noon 1:00pm.

**If you have not already done so, please join the Bmad Slack workspace:**

[https://join.slack.com/t/bmad-simulation/shared\\_invite/zt-flwsmc3-ITpqJyhRKNwWkZSA6b4LUw](https://join.slack.com/t/bmad-simulation/shared_invite/zt-flwsmc3-ITpqJyhRKNwWkZSA6b4LUw)

If you have any problems, please contact [dc16@cornell.edu](mailto:dc16@cornell.edu).

### **Class Hours:**

9:00 - 10:30 class  
10:30 - 10:45 coffee break  
10:45 - 12:15 class  
12:15 - 13:15 lunch  
13:15 - 14:45 class  
14:45 - 15:00 break  
15:00 - 16:30 class

### **Bmad Installation:**

The first thing you will need to do for the class is to install Bmad on your laptop. Currently, Bmad is supported on MacOS, Linux and Windows running Windows Subsystem for Linux 2 (WSL2) which allows you to run a Linux environment on Windows.

Please make sure you install a version of Bmad from July 1, 2024 or later.

Installation instructions at:

[wiki.classe.cornell.edu/ACC/ACL/OffsiteDoc](http://wiki.classe.cornell.edu/ACC/ACL/OffsiteDoc)

Easiest is to do the conda install (conda is a package manager most commonly used for Python packages). Essentially, the conda install of Bmad is:

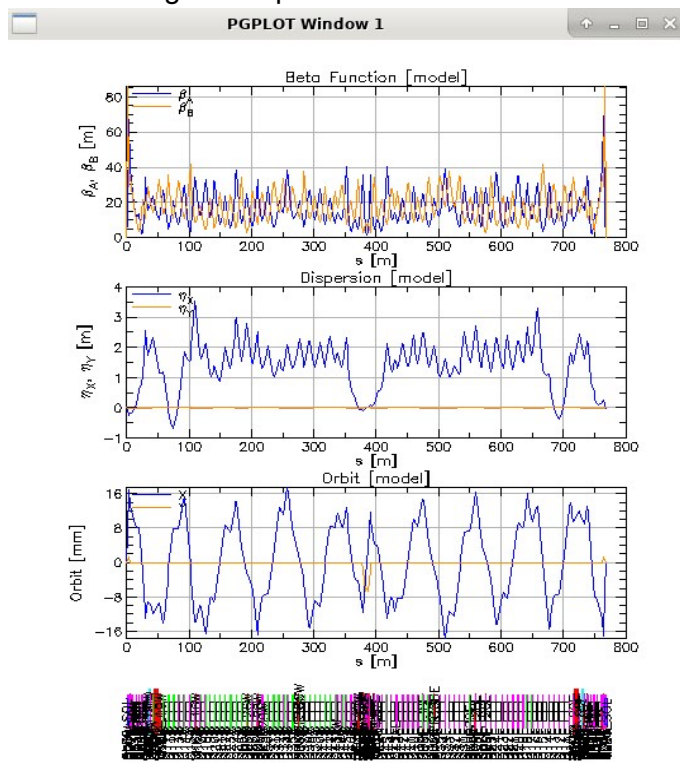
1. Install conda if you do not have it already. Installation instructions can be found here: <https://docs.anaconda.com/miniconda/#quick-command-line-install>
2. Install Bmad using the command  
`conda install -c conda-forge bmad`
3. Download a Bmad Release from <https://github.com/bmad-sim/bmad-ecosystem>

This is needed to access examples.

Once the installation is complete, test that you can run the Tao program with the command:

`tao -lat $DIST_BASE_DIR/bmad-doc/tao_examples/cesr/bmad_L9A18A000-_MOVEREC.lat`  
where `DIST_BASE_DIR` is an environment variable defined by you to point to the Bmad Release you downloaded (or just substitute the path to the Release in the command).

This should give the plot window below.



That's it! Tao can be exited using the command `exit`.

Please install Bmad before class starts since if there are any hiccups, the process of sorting things out will be less rushed. **Please do not hesitate to communicate via Slack if you have any installation problems....**