



ICALEPCS 2015

International Conference on Accelerator
& Large Experimental Physics
Control Systems

PYTHON BASED SOFTWARE FOR WAVELENGTH METER AT OPTICALLY PUMPED POLARIZED ION SOURCE

P. Kankiya, J. Jamilkowski

MOM302

Brookhaven National Laboratory, Upton,
New York, USA



ICALEPCS 2015

International Conference on Accelerator
& Large Experimental Physics
Control Systems

Project Goal : Adopting Proprietary Software into Native Environment.

Test Case : Integrate High Finesse's Wavelength meter to Relativistic Heavy Ion Collider(RHIC) controls by using manufacturer supplied Dynamic Linked Library.

Enable administrative tasks such as generating alarms , data logging, parameter archiving on COTS Hardware.

Develop a framework to reduce development efforts when adding new systems with proprietary software.



ICALEPCS 2015

International Conference on Accelerator
& Large Experimental Physics
Control Systems



Solution outline: ~~A Py In The SKY~~

- Use of a foreign function interface (FFI) to reduce development effort without compromising performance. **Python!**
- Choose a lightweight platform independent interpreter and compiler. **Python!**
- No dependency on legacy code to avoid use of remote clients for version controls which we currently depend on. **Python!**



ICALEPCS 2015

International Conference on Accelerator
& Large Experimental Physics
Control Systems

Conclusion

- **Results achieved:**
 - Simple application demonstrating successful data collection is developed.
- **Lessons learned :**
 - Python module in use “Ctypes” requires redefinition of low level header file in python.

An alternative called Cython can simplify this task.
 - Involvement of Controls engineers at initial stages of procurement can be beneficial.
- **What’s next :**
 - Efforts are ongoing to extend the solution to a Python based control framework.

