



# ICALEPCS 2015

International Conference on Accelerator  
& Large Experimental Physics  
Control Systems

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

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## **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.



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## 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!**



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## 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.

