

The Parallel-object Programming Model

Experiences teaching the Charm++ programming language

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International Symposium on Computer Architecture and High Performance Computing
October 18-25, 2015
Florianópolis, Santa Catarina, Brazil



- ▶ *Programming with Parallel Objects: from MPI to Charm++*
- ▶ Instructors: Laércio Pilla, Celso L. Mendes, Esteban Meneses
- ▶ Number of participants: 15
- ▶ Audience mainly conference attendees
- ▶ Duration: 2 hours

Topics:

- ▶ Parallel objects
- ▶ Migrating MPI to AMPI
- ▶ Charm++ language basics





Scientific Computing National Laboratory (LNCC)
2016-2017
Petrópolis, Brazil

- ▶ *Charm++ and AMPI Programming*
- ▶ Instances: February 2016, February 2017, August 2017
- ▶ Instructor: Laércio Pilla
- ▶ Number of participants: 20
- ▶ Audience: postdocs, undergraduate and graduate students

Topics:

- ▶ Parallel objects
- ▶ Charm++ language basics
- ▶ Conversion of MPI programs to AMPI

High Performance Computing Camp
September 18-29, 2017
Buenos Aires, Argentina



- ▶ *Programming with Parallel Objects*
- ▶ Instructors: Esteban Meneses
- ▶ Number of participants: 52
- ▶ Audience mainly graduate students
- ▶ Duration: 16 hours

Topics:

- ▶ Parallel objects
- ▶ Charm++ language basics
- ▶ Migratability and load balance
- ▶ Checkpointing



- ▶ Interleave lectures with hands-on sessions
- ▶ Enough time for exercises
- ▶ Skeleton for Charm++ exercises
- ▶ Emphasize load-balancing codes
- ▶ Use visualizations for code examples
- ▶ Have teaching assistants during tutorial
- ▶ Have on-line technical support during tutorial (Slack channel, v.g.)
- ▶ Run an evaluation after tutorial
- ▶ Compare to MPI constructs
- ▶ Have a simpler grammar for parallel objects (Python)

Thank You!
Q&A

