



## Iterative Methods: Evaluation, Library, and Middleware

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## Iterative Solvers

- Key component of Scientific computation
- The best algorithm for the problem?
- The best storage format?
- Various Computing Environments
- Accurate and robust code
- Quick implementation and ease of use
- Future Extension

## To find the best algorithm

- To choose the best choice of Iterative Solver and Preconditioner is difficult problem. What should I do?
- **Use TiS (Test of Iterative Solvers);** TiS suggests the best combination of Iterative Solver and Preconditioner based on your own problem with no programming effort.


## To choose the best implementation

- How should I decide which data storage format is the best for the computing environment?
- **Lis** (a Library of Iterative Solvers for linear systems) **provides various iterative solvers, various preconditioners, and various storage formats.**

## To port your code for anywhere else

- Will you use your code in many computing environments?
- **SILC** (Simple Interface of Library Collections) **is the solution.** The user code of SILC run any computing environments with no change to your code.





## Summary:

### For productive scientific simulation

- TiS evaluates algorithms based on data
- Lis provides various choice to your code
- SILC supports many computing environments



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## Information resources

- TiS [hasegawa@slis.tsukuba.ac.jp](mailto:hasegawa@slis.tsukuba.ac.jp)  
Web page is coming soon!
- Lis <http://ssi.is.s.u-tokyo.ac.jp/lis/>
- SILC <http://ssi.is.s.u-tokyo.ac.jp/silc/>