

ILDG status and Physics plans in Italy

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(on behalf of Francesco Di Renzo)

NEXT Center (at Roma "La Sapienza") is the (almost) LGT-dedicated apeNEXT installation (not only a national facility: French machines also installed there).

The **italian installation** amounts to **12 racks**; actually different queues configured for rack, crate and unit-mode runs (a total **installed peak performance of about 7 TFlops**). Not all the projects run on NEXT Center machines are directly relevant to ILDG (i.e., Topology and Confinement, Finite Temperature, Numerical Stochastic Perturbation Theory, Turbulence, ...)



The **Rome APE group** is in charge of managing the center.

Some **storage space** is also **available to NEXT Center** users (of order 20 TB).

Allocation of computing quotas available to users are managed via the INFN research projects (*iniziativa specifiche*) system. The **projects relevant to ILDG** activities are mainly **based at the three Rome Universities**.

In particular, the **italian branch of the European Twisted Mass Collaboration** (groups based at the three Rome universities) has been making use of the **(LDG)** ILDG infrastructure to store and cross-exchange configurations. **Availability of configurations is subjected to ETMC policy.**

At the moment italian groups are mainly **LDG-users**. Due to funding (and therefore also human resources) severe limitations, there was actually no (fraction of) FTE allocated to ILDG activities.

While we are grateful to people developing and maintaining LDG, we are **committing** to a more "active" contribution to the grid (at least, **installation of SE**).

This is being considered also in connection with an **upgrade of the storage available to NEXT Center** users (not necessarily to be installed in Rome).

A relevant **Grid expertise** in **Parma INFN group**. They could provide some support. At the moment, there is no certain funding.

| Ensemble | $L^3 \times T$ | β | $a\mu_q$ | κ | $\tau_{\text{int}}(P)$ | $\tau_{\text{int}}(\text{amps})$ | τ |
|----------|------------------|---------|----------|----------|------------------------|----------------------------------|--------|
| A_1 | $24^3 \times 48$ | 3.8 | 0.0060 | 0.164111 | 190(44) | 8(2) | 1.0 |
| A_2 | | | 0.0080 | | 172(80) | 10(2) | 1.0 |
| A_3 | | | 0.0110 | | 130(50) | 6(1) | 1.0 |
| A_4 | | | 0.0165 | | 40(12) | 6(1) | 1.0 |
| A_5 | $20^3 \times 48$ | 3.8 | 0.0060 | 0.164111 | 250(100) | 5(1) | 1.0 |
| B_1 | $24^3 \times 48$ | 3.9 | 0.0040 | 0.160856 | 47(15) | 7(1) | 0.5 |
| B_2 | | | 0.0064 | | 23(7) | 17(4) | 0.5 |
| B_3 | | | 0.0085 | | 13(3) | 10(2) | 0.5 |
| B_4 | | | 0.0100 | | 15(4) | 7(2) | 0.5 |
| B_5 | | | 0.0150 | | 30(8) | 20(6) | 0.5 |
| B_6 | $32^3 \times 64$ | 3.9 | 0.0040 | 0.160856 | 37(11) | 2.8(3) | 0.5 |
| C_1 | $32^3 \times 64$ | 4.05 | 0.003 | 0.157010 | 18(4) | 7(1) | 0.5 |
| C_2 | | | 0.006 | | 10(2) | 9(2) | 0.5 |
| C_3 | | | 0.008 | | 13(3) | 7(1) | 0.5 |
| C_4 | | | 0.012 | | 5(1) | 4.8(6) | 0.5 |
| C_5 | $24^3 \times 48$ | 4.05 | 0.006 | 0.157010 | 12(2) | 11(1) | 1.0 |
| C_6 | $20^3 \times 48$ | 4.05 | 0.006 | 0.157010 | 10(2) | 7(1) | 1.0 |

Table 1: Summary of ensembles produced by the ETM collaboration. We give the lattice volume $L^3 \times T$ and the values of the inverse coupling β , the twisted mass parameter $a\mu_q$, the hopping parameter κ and the trajectory length τ . In addition we provide values for the integrated autocorrelation time of two typical quantities, the plaquette P and the pseudo scalar mass amps , in units of $\tau = 0.5$.

from Carsten Urbach
PoS (LATTICE 2007) 022

Configuration ensembles
generated by ETMC

A_3 and A_4
 B_5
 C_2 (50%), C_3 and C_4 (33%)

generated by apeNEXT
machines in Rome

A lot of Physics still going on
from $n_f=2$ configs:

- quark masses, chiral condensate, ChPT LEC's ...
- hadronic form factors ...
- WME's ...
- NP renormalizations ...

Within ETMC, Rome groups are considering the prospects for a sound 2+1(+1) formulation.