Site Report on Physics Plan from Japan

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Summary table of available configurations

flavors	fermion/ gluon action	machine collaboration	a(fm)	lattice	pi/rho	approx #configs	status
2	Wioson-clover/ Iwasaki (2001)	CP-PACS/Tsukuba CP-PACS	0.20	12^3x24	0.8-0.55	1000x4	available
			0.15	16^3x32	0.8-0.55	1000x4	
			0.10	24^3x48	0.8-0.55	800x4	
2+1	Wilson-clover/ Iwasaki (2006)	ES/JAMSTEC SR8000/KEK CP-PACS/Tsukuba CP-PACS+JLQCD	0.12	16^3x32	0.8-0.6	800x5x2	available
			0.10	20^3x40	0.8-0.6	800x5x2	
			0.07	28^3x56	0.8-0.6	600x5x2	
2	overlap/ Iwasaki (2006)	BG/L/KEK JLQCD	0.12	16^3x32	0.66-0.34	1000x6	available
2+1	Wilson-clover/ Iwasaki (2008)	PACS-CS/Tsukuba PACS-CS	0.09	32^3x64	0.6-0.2	≈2600	available
2+1	Wilson-clover/ Iwasaki (2012)	T2K/Tsukuba Yamazaki et al.	0.09	32^3x48	0.5	400	available
				40^3x48		200	
				48^3x48		200	
				64^3x64		300	

Strategic Field Program with K computer: status and plan

<u>2+1 flavor QCD</u>
- Iwasaki + clover with stout smearing
- DDHMC w/ MP for ud and UV-filtered PHMC for s

<u>Status and plan</u>
- 2+1 flavor QCD at physical pt. on 〜$(10fm)^3$ with a~0.1fm
- Hadron-hadron interactions and others

<u>Machine at U.Tsukuba</u>
- HA-PACS: GPU cluster (2012.2〜)
- T2K-Tsukuba: cluster (〜2014.2)
- COMA: MIC cluster (2014.4〜)

JLQCD: status and plan

Fine lattice simulations of 2+1-flavor QCD with nearly chiral lattice

- tree-level Symanzik gauge + Mobius DW (on 3 stout)
- keeping the residual mass less than 0.5 MeV
- fine lattices: $1/a$ = 2.4, 3.6 GeV (now) plus 4.8 GeV (planned)
- pion mass 500, 400, 300 MeV as well as 220 MeV
- main physics application: heavy flavor physics

Running on IBM Blue Gene/Q at KEK

- mainly used by lattice groups
- code optimization using BGNet, BGQThreads, BGWilson (from IBM Japan) and BFM (from Peter Boyle) integrated in IroIro++ package