RESULTS OF SURVEY ON INTERESTS AND PROPOSALS

- 43 answer out of 113 invitations to participate.
- Most answers empty.

⇒Not a great success…..

In the following the full list of the answers.

PROPOSAL FOR COLLABORATIVE PROJECTS

The GDR-InF gathers together theorists and experimentalists working on different topics and experiments. If you have a concrete proposal of a short, medium or long term collaborative project that you would like to propose to the GDR-InF community and that could be started at the workshop in Arles, please describe it briefly here. It could involve only theorists, only experimentalists, or both.

Sebastien, WG2: Connections between the searches for lepton-flavour violating processes, lepton-flavour universality violating processes and NP models. WG2

Vitek Krasny, WG5: I proposed already my Gamma Facory project to the GDR-InF community (CERN workshop).

Olivier Leroy, WG2: Most sensitive observables to New Physics in b to c l nu and b to u l nu transitions and their ratios (l = e, mu, tau).

PROPOSAL OF TOPICS FOR DISCUSSION

Are there any topics that you would be interested in discussing with others at Arles, which may or may not potentially lead to a collaboration within the GDR-InF?

Schune, WG2: Understanding the theoretical uncertainties in R(D*) in view of the recent papers (D* width ...)

Marc Knecht, WG2: I think that generally speaking the issue of radiative corrections is an important item, given the precision expected on say, semileptonic
decays of mesons at future B factories

Vitek Krasny, WG5: The physics reach of the Gamma Factory project.

Stephane Lavignac, WG2: The B physics anomalies (but I will unfortunately not be in Arles).

WG3, 5:

- Machine learning for HL_LHC (see: arxiv:1807.02876 - Machine Learning in High Energy Physics Community White Paper)
- Improvements and limitations of dispersion relations as constraints in high-statistics Dalitz Plot analyses (see also the closing talk of ATHOS/PWA 2018:

https://indico.ihep.ac.cn/event/7377/session/15/contribution/58/material/slides/0.pdf)

Olivier Leroy, WG2: Most sensitive observables to New Physics in b to c l nu and b to u l nu transitions and their ratios (l = e, mu, tau). Experimental and Theoretical aspects. All test of Lepton Flavor Universality

SUMMARY OF ACTIVITIES

Could you provide a summary of your relevant recent research activities?

Sebastien DG WG 1,2,4,5
- global fits : CKM parameters, Wilson coefficients for b->sll
- study of other b->sll modes (baryons, b->s tau tau)
- prospective : CKM parameters for HL-LHC and BESIII, and for searches for NP in Delta F=2

Fabrice Desse, WG 2 : B -> K*ee angular analysis, R(K*)

Arnaud Robert, WG 1, 2: neutrino physics, CKM physics

Schune, WG2: RK*; K*ee angular analysis ; RpK ; understanding the photon conversion in geant4 ; electron tracking efficiency (no special ordering in this list)

Sarah Porteboeuf-Houssais, WG3: Quark-gluon plasma; collectivity in small systems; quarkonia production; quarkonia production as a function of multiplicty

Dawid Gerstel, WG2: Measurement of R(D*) with hadronic tau decay at LHCb

Stephane Lavignac WG4: My recent activities are more in the lepton sector: lepton flavour effects in leptogenesis, flavour violation in GUT models (work in progress).

Olivier Leroy, WG2: R(D*) and related modes.

Cedric Meaux, WG2: B^0_(s)-> tau^- tau^+ search via the 6 pions final state in LHCb.
Improve the prediction and explore the phenomelogy of the charm decay D^+->pi^+ \ell \ell

Marc Knecht, WG2:

1- Studies related to a composite Higgs: a) dynamical determination, within a renormalizable, vector-like, asymptotically free gauge theory UV completion of a composite Higgs sector, of the spectrum of mesonic and baryonic resonances; b) construction and renormalization at one loop of the effective theory for the EW theory with a non-elementary Higgs. The ieea is to end up with a framework smilar to SMEFT (the case of an elementary Higgs) in the case of a composite Higgs.

2- Phenomenological study of rare kaon decays, trying to make predictions for the corresponding strong-interaction form factors

3- Muon g-2, recently the contributions from scalar states

4- Eta decay into three pions, determination of quark mass ratio

5- Radiative corrections in semi-leptonic decays or in hadronic decays of the tau

Vitek Krasny, WG5: Together with ~ 50 physicists we are developing Gamma Factory project for CERN

Isabelle Ripp-Baudot, WG1,2:

- study of the SuperKEKB beam induced background and of its impact on experimental performances

- measurement of the time dependent CP asymmetries of B->K0S π+π- gamma and B->K0S π0 gamma decays (with Belle II simulated data up to now)