

HQL2018 closeout

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Yamagata

First of all, thank you again for coming to Yamagata. I hope it was a new experience for you, even if you have already been to other parts of Japan before.

And your contribution to HQL2018 made the very dense and fruitful program, which we enjoyed throughout the week.

And it is also a new experience for people in Yamagata, to welcome such an international conference in Tohoku area.

Some statistics

- **74 contributions in 10 sessions**
 - including 7 posters
- **83 participants + 10 accompanies (including LOC)**
 - 22 participants from Japan,
11 from Germany,
8 from US, 8 from China,
7 from Italy,
6 from Spain, 6 from UK, ...
- **Diversity**
 - From 16 countries based on affiliation
 - Further diversity in terms of nationality
- **Good attendance to the social events :-)**
 - 77 to the excursion
 - 81 at the banquet

Some highlights

My apology for omitting important results and even some of the entire sessions

B physics

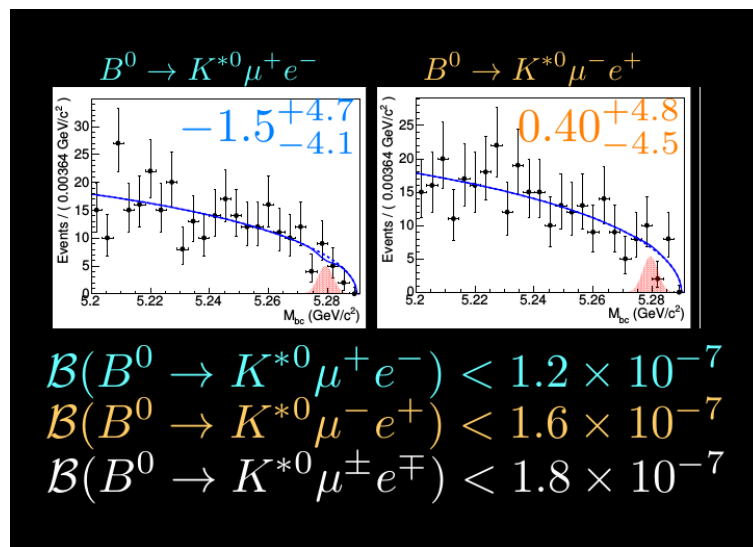
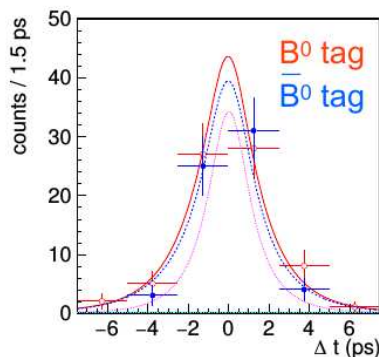
HQL has been one of the major conferences where new results on B physics are reported, For example, new results from Belle, shown for the first time in Yamagata:

ϕ_1^{eff} measurement in $B^0 \rightarrow \pi^0 \pi^0 K^0_S$

$$\sin 2\phi_1^{\text{eff}} = 0.92_{-0.31}^{+0.27} \text{ (stat.) }_{-0.11}^{+0.10} \text{ (syst.)}$$

$$\mathcal{A} = 0.28 \pm 0.21 \text{ (stat.) } \pm 0.04 \text{ (syst.)}$$

First result from Belle.
Consistent with SM expectation.



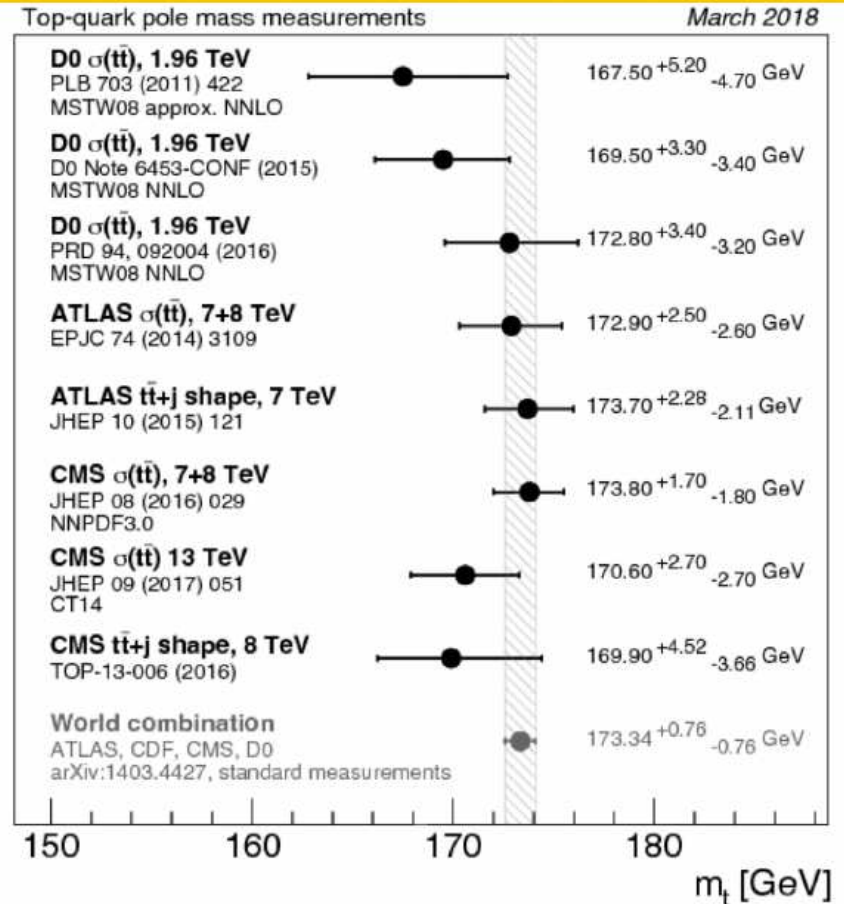
And new era is opening up with huge statistics of LHCb and startup of Belle II

- **Lepton flavor universality is a potential key to open the door to BSM:**
 $B \rightarrow D^{(*)} \tau \nu, B \rightarrow K^{(*)} \ell^+ \ell^-$
- **Possible hints such as $K\pi$ puzzle for which Belle II data is awaited**

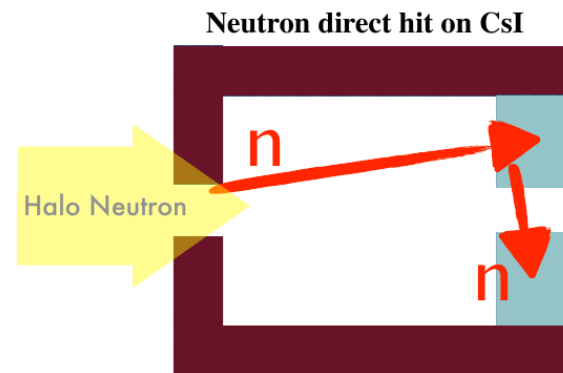
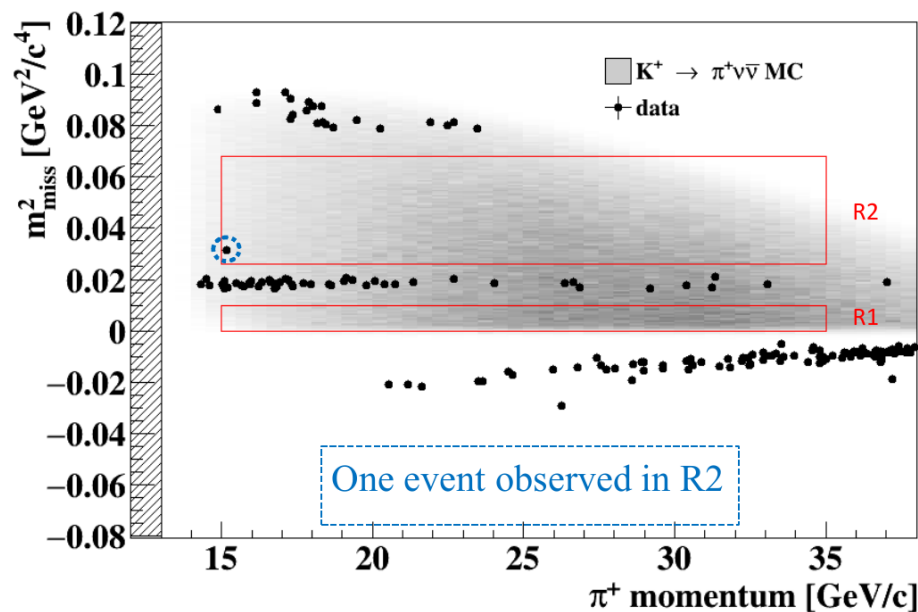
Top physics

- Rich program, only accessible by LHC
- No top hadron makes top physics very different from other heavy quark physics
- Well-defined top pole mass

<https://twiki.cern.ch/twiki/pub/CMSPublic/PhysicsResultsTOPSummaryFigures/>



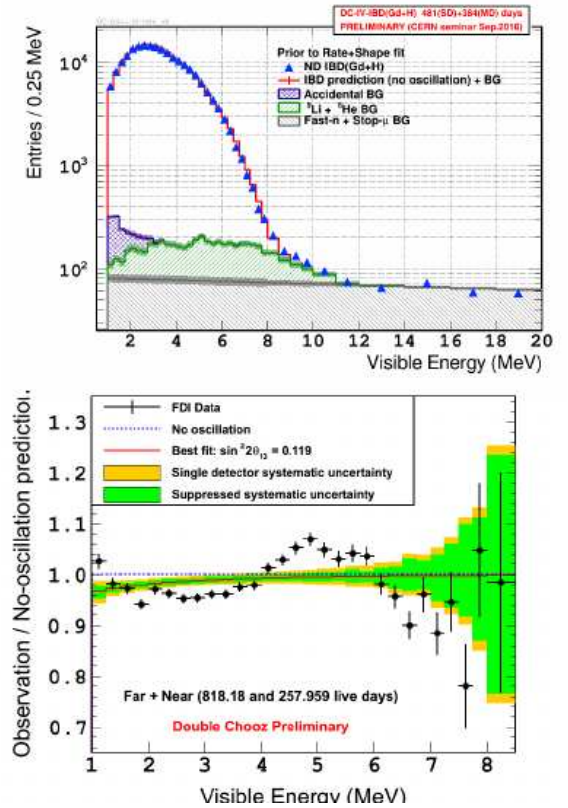
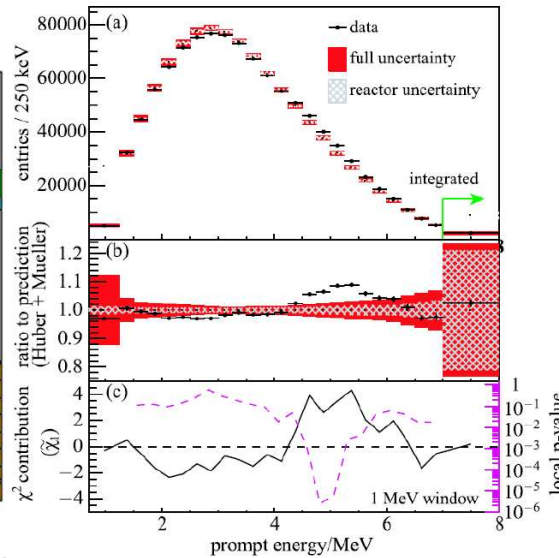
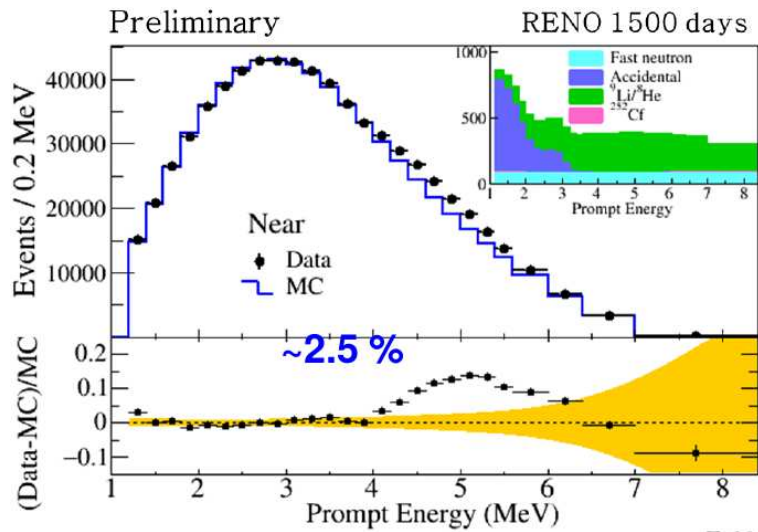
Kaon physics



- Direct search: $BR < 2.6 \times 10^{-8}$ (90%CL) by KEK E391a
 - The result from KOTO 100-hours data in 2013 was $BR < 5.1 \times 10^{-8}$, based on 1 remaining “background” event.
- Grossman-Nir limit: $BR < 1.5 \times 10^{-9}$

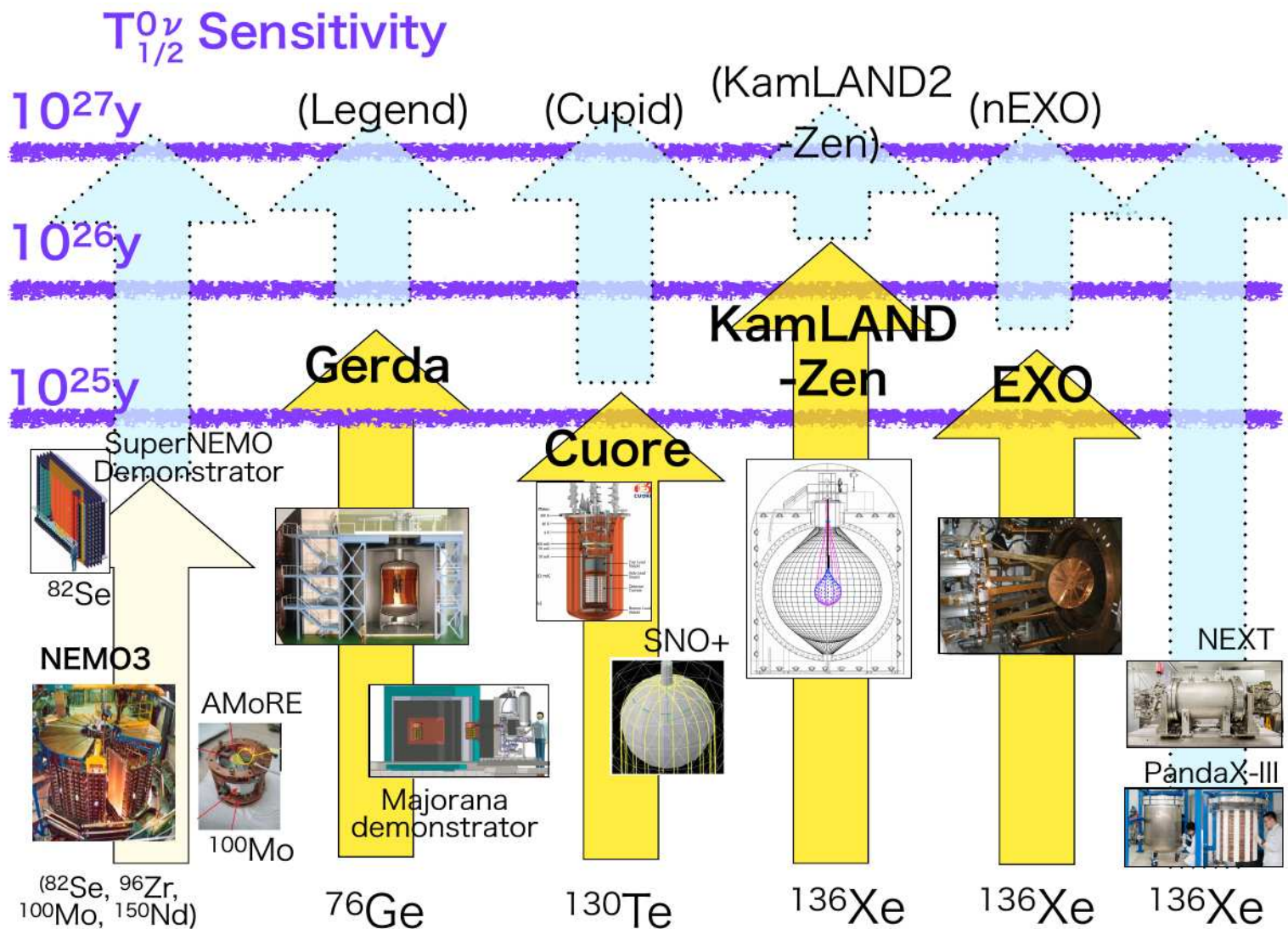
- Very clean physics, ultra low branching fraction
- One “signal” event in $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ by NA62
- One “neutron background” event in $K_L \rightarrow \pi^0 \nu \bar{\nu}$ by KOTO
- KOTO 2018 run starting today

Neutrino physics



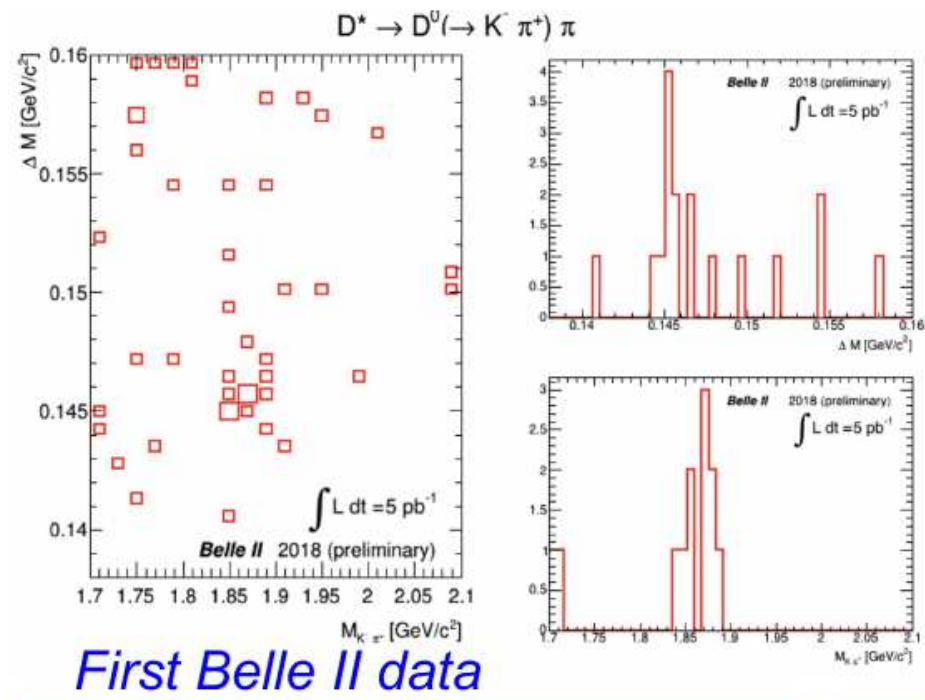
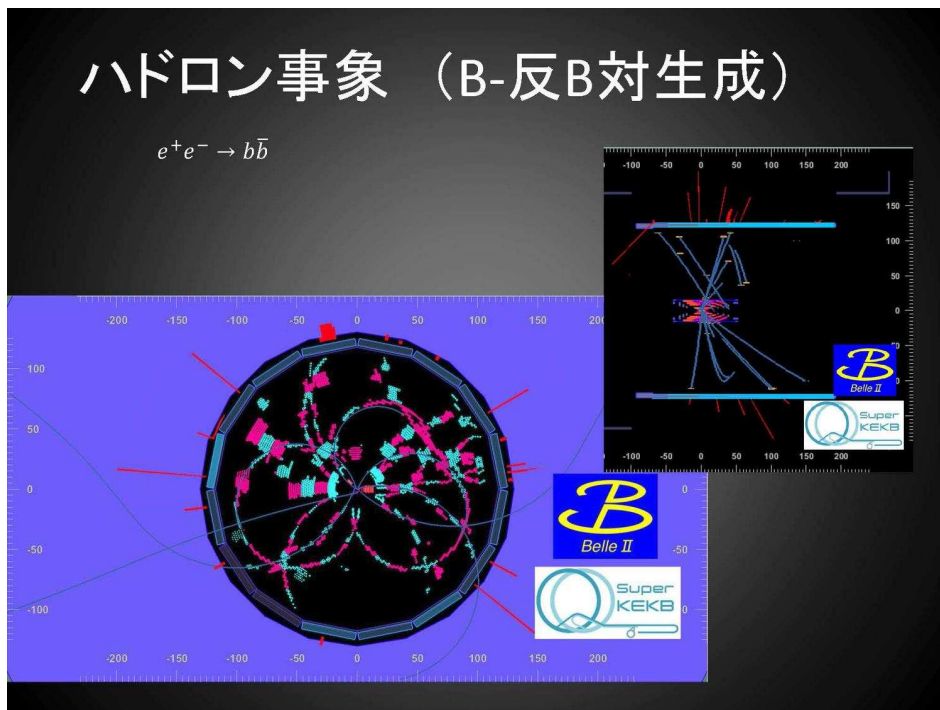
- Nice $\sin^2 2\theta_{13}$ results, but the 5 MeV excess is yet to be understood
- Many groups are planning to present new results at Neutrino 2018 next week (a bit unfortunate for HQL)

$0\nu\beta\beta$ decays



- Hot field! 5 talks on neutrino-less double- β decay search!
- Gerda new result originally for Neutrino 2018 next week

Belle II is turning on!



- **Belle II is finally starting!**

I should be more busy on running the detector, not running the conference

- **Stay tuned in coming years**

A bit more information

Satisfaction Suvery

- Traveller Satisfaction Survey
 - Please answer the survey and turn in it when you leave Yamagata or conference end.

To the participants

Questionnaire

Welcome to Yamagata. This questionnaire is designed to canvas your opinions regarding the conference, and the results will be incorporated into future efforts to make Yamagata an even better location for conventions. Please answer the following questions by filling in the blanks or circling the relevant numbers. You are kindly requested to bring this questionnaire to the Information Counter after completing it. A small gift will be given to each respondent. Your cooperation is greatly appreciated. Please be assured that your answers and any personal information will not be used for any purpose than for this survey.

Convention Bureau Yamagata

1. Please give your nationality, sex, age, etc.

①Nationality:	②Sex: 1. Male 2. Female
③Age: 1. Up to 19 2. 20s 3. 30s 4. 40s 5. 50s 6. 60s 7. 70 or over	
④Number of visits to Yamagata:	⑤a day trip or did you stay at a hotel: 1. Day trip 2. Stay at hotels



HQL2018 Proceedings

- Proceedings of HQL2018 will be published in PoS.
- Suggested page limits, in addition to the cover page, are,
 - 4 pages for posters
 - 6 pages for 15 / 20-minute presentations
 - 8 pages for longer presentations
 - You may add a few more pages if needed, as these are not hard limits. But please do not exceed 10 pages (+ 1 cover page).
- **Submission deadline: August 1**
 - Large collaborations usually have internal review period. Please also take it into account!
- **Instruction to be sent to you from PoS**

HQL2020

- In Warwick, UK
- Chaired by Tim Gershon
- Date: May 2020
or July 2020 if it turned
out to be cheaper



Kenilworth

- Historic ruined castle
- Possible reception destination

Coventry

- Historic city centre
- famous cathedral(s)
- St. Mary's Guildhall (possible location for conference dinner)

Stratford upon Avon

- Shakespeare's birthplace
- Home of the RSC
- Possible excursion destination
- may include theatre visit

Warwick

- World famous castle
- Major tourist attraction
- Possible excursion destination



And finally,
safe trip back home!

HQL2018 LOC team:

Katsumi Senyo, Mikihiro Nakao,

Nanae Taniguchi, Yoshiaki Seino, Yo Sato