Follow-up on Furman-Pivi simulations

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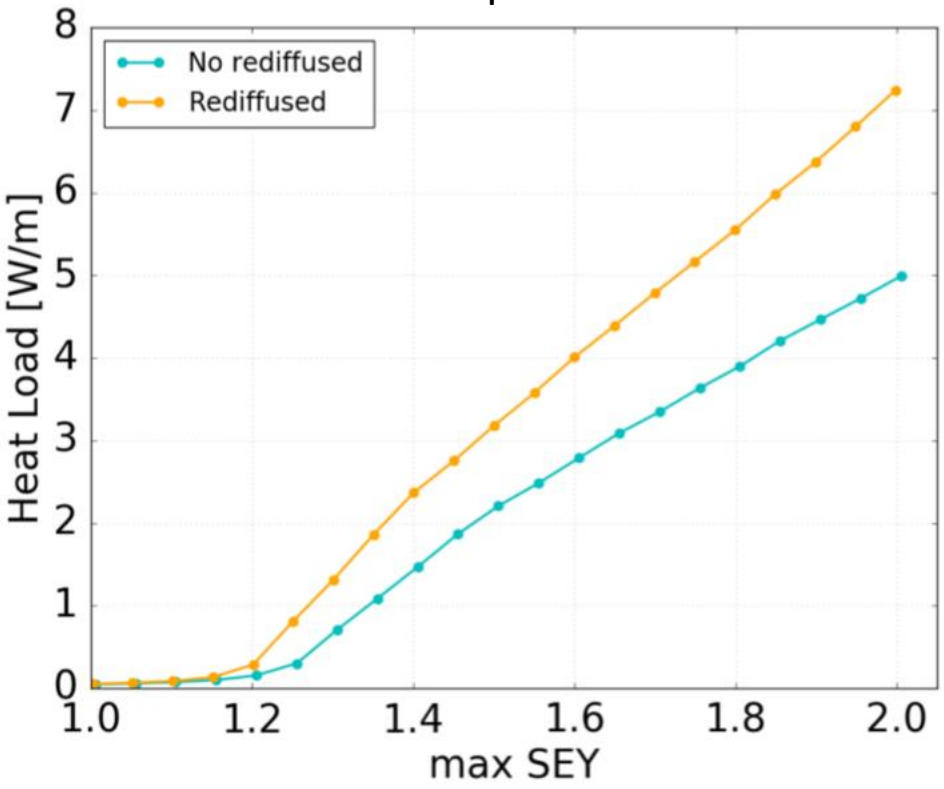
Many thanks to:
L. Mether, E. Metral and G. Rumolo

We performed simulation studies introducing “rediffused electrons” (see presentation by E. Wulff at EC meeting #68) in our usual surface model

- Rediffused component is introduced in the emission energy spectrum minimizing side-effects on other surface properties (SEY curve shape)

LHC dipole



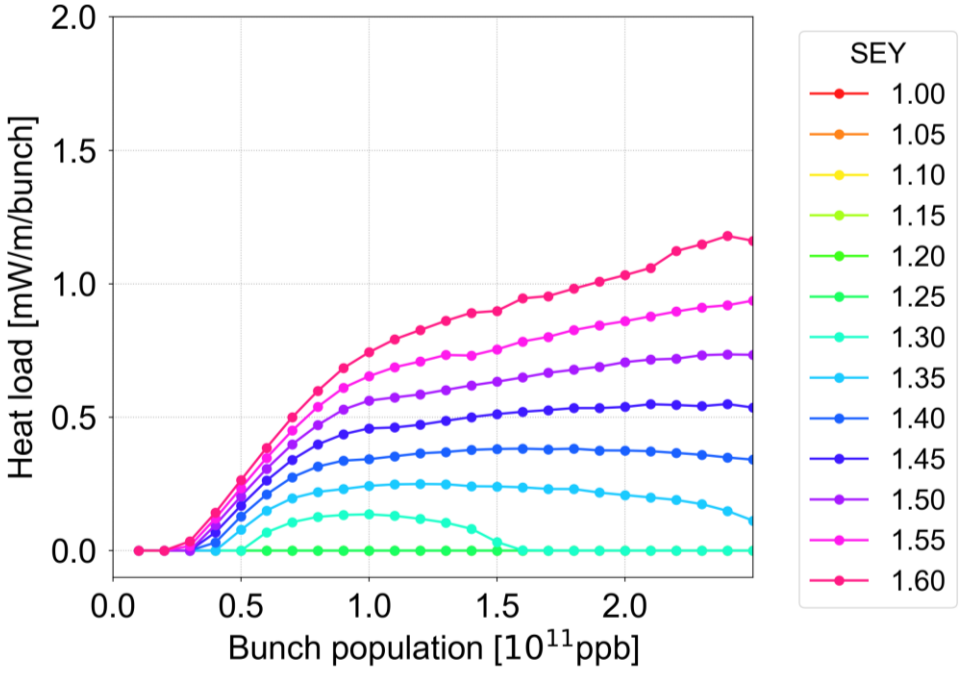
- The impact on the heat load and on the SEY threshold is visible but not huge

Dependence on bunch intensity - dipole

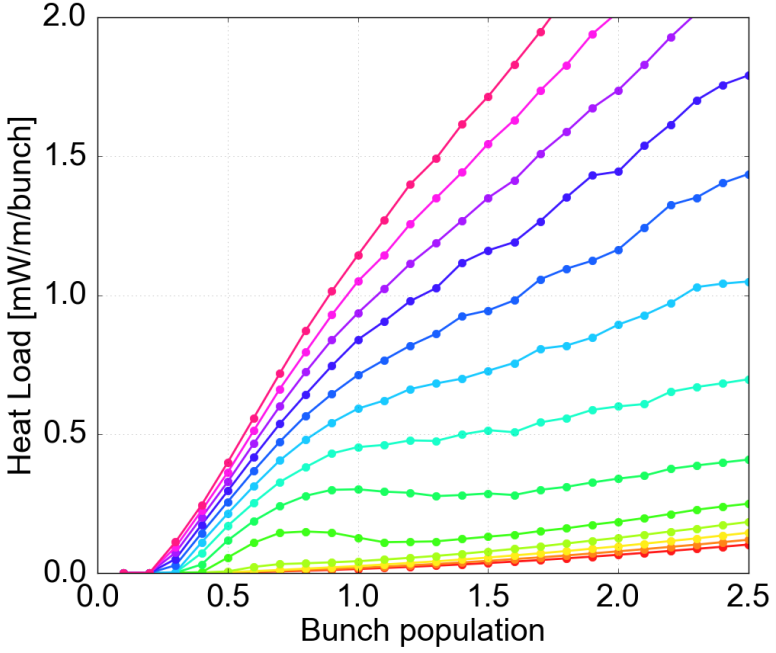
Impact of the rediffused electrons:

- For the same SEY_{max} the heat loads tend to be larger
- For realistic SEY (<1.4) the non-monotonic dependence of the heat load on the bunch intensity is is still present

Without re-diffused



With re-diffused

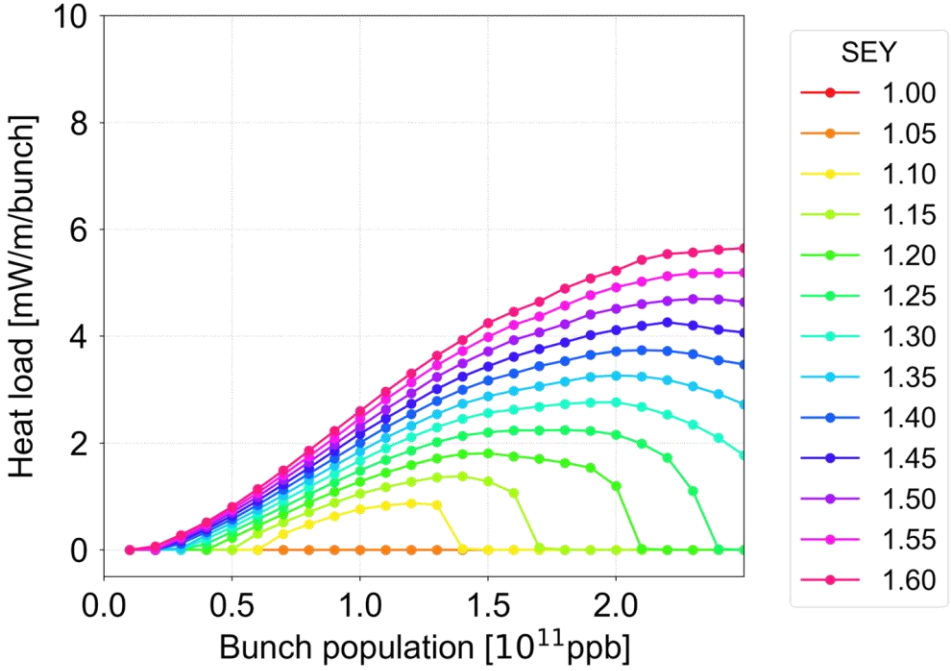


Dependence on bunch intensity - quadrupole

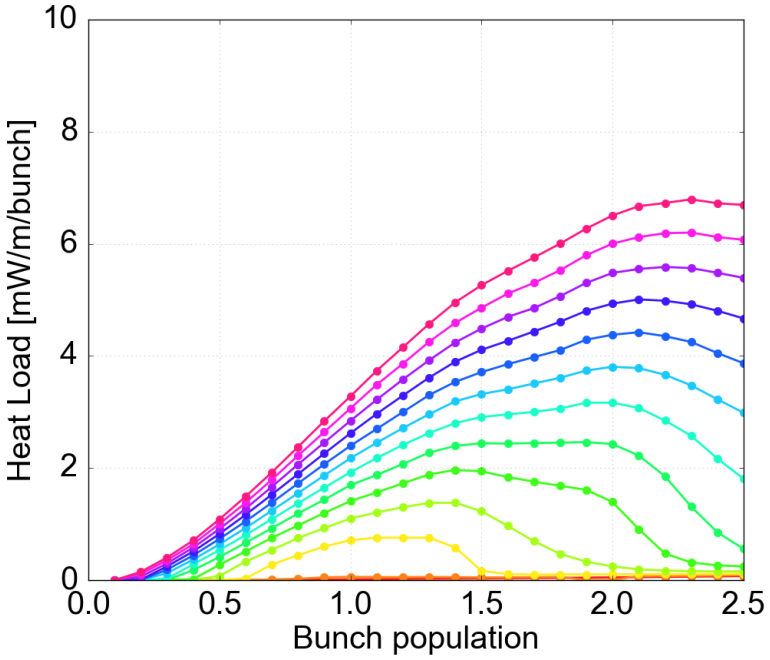
Impact of the rediffused electrons:

- For the same SEY_{max} the heat loads tend to be larger
- The non-monotonic dependence of the heat load on the bunch intensity is is still present

Without re-diffused



With re-diffused



Looking forward to having measured emission energy spectra to pin down this important part of the model (→ should be coming towards the end of the year)