

K^0 L Meeting May 29, 2024

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CPS Model Update – May 2024, “KLCPS80”

- Minor adjustments to the model to follow the engineering design

<https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Geometry01.png>

- New pattern of the cooling water lines in Absorber

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Geometry03_entrance_waterloops.png

- Add spaces for the water pipes supply, loop, and return portions

- New magnet coil design: straight coils, away from beam, CuW shield around

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Geometry01_coils.png

<https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/DsAccum.png>

- More symmetric tapered in x and y entrance slit between magnet and absorber

- Magnet moved down 2cm to allow more scattered electrons hit absorber

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Power_Distr.pdf

- Updated power deposition maps for the nominal and tune conditions

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Power_Distribution.png

- New updated FLUKA version

CPS Model Update – May 2024, “KLCPS80”

- No major changes in overall performance

<https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/PromptDoseEqTot.png>

<https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Eq1MeVnFl.png>

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/EdNdE_spectra.pdf

- Dose accumulation in the coils less than ~20000 Gy/10000 beam hours

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/xyDsAc_MagCoil.pdf

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/xyDsAc_MagCoilBck.pdf

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/yzDsAc_MagCoil.pdf

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/yDsAc_MagCoil.pdf

- The model, data files, and more results may be found at

<https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/>

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https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/Anim_xyPow.gif

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/zPow_Full.pdf

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/zyDsRt_X0.pdf

https://userweb.jlab.org/~pavel/projects/KLCPS/klcps80/nominal/yDsRt_Z60m_pbl.pdf