

# Calo4pQVAE: Progress and updates

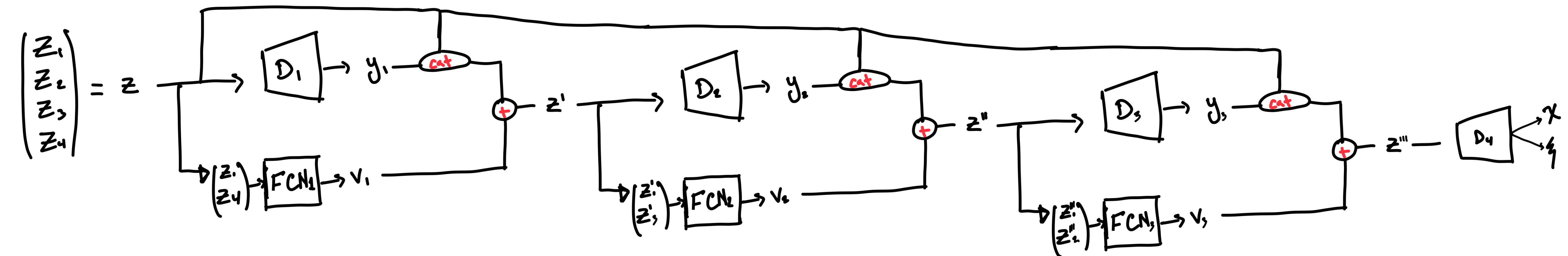


Aug 15 2025



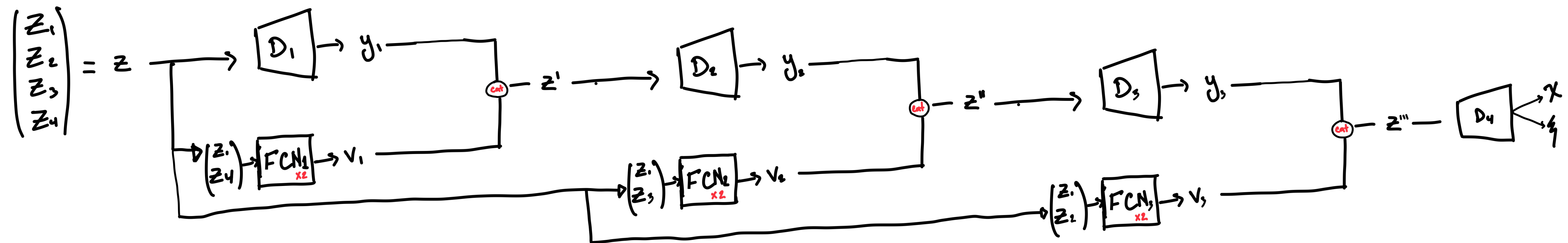
# CaloQuVAE

## Decoder architectures (1a)



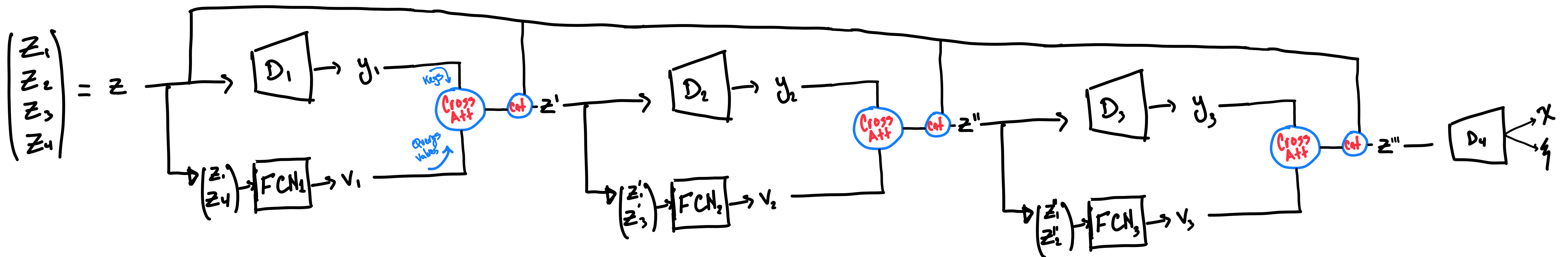
# CaloQuVAE

## Decoder architectures (Leo)



# CaloQuVAE

Decoder architectures (w/ cross Att)





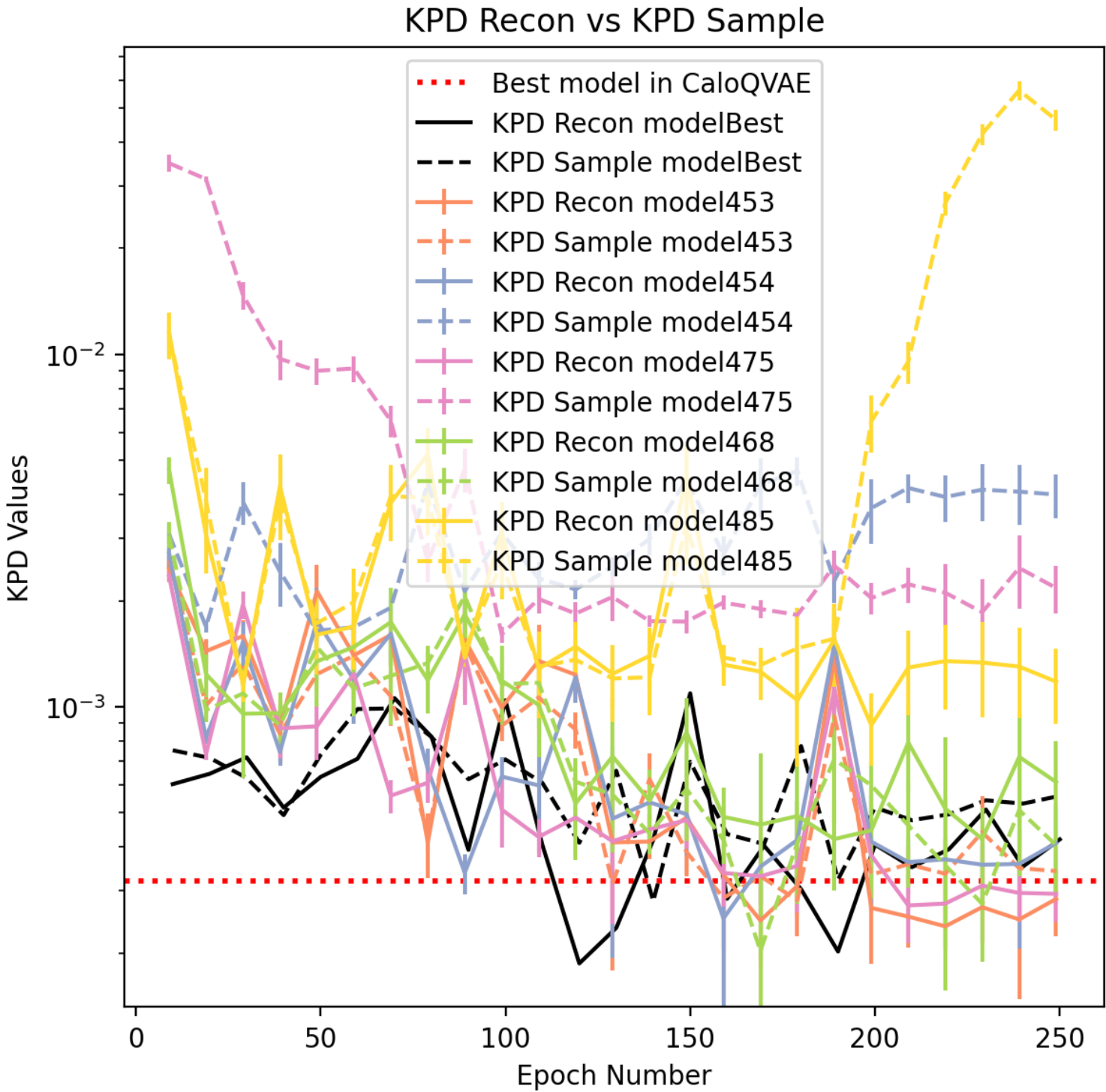
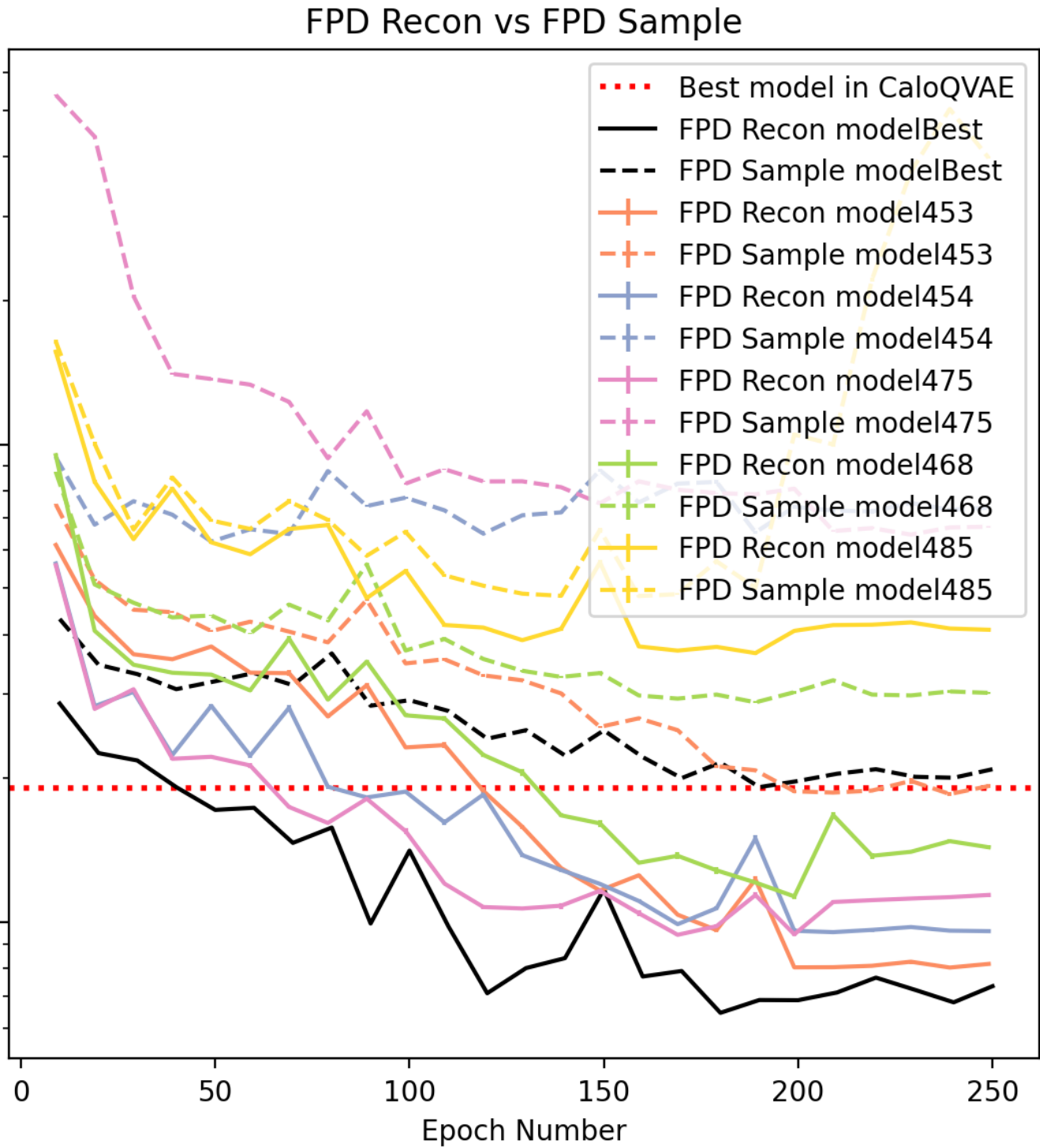
# CaloQuVAE

Since previous meeting

- ✦ Improve the cross attention
- ✦ Benchmark previous models with the Frobenius metric and correlation  
Denaisha coded
- ✦ Add hidden layer to RBM

# CaloQuVAE

## RBM ADAM opt



hearty-shape-490 at: <http://localhost:8080/calovae/calovae/ap3mcnoa>

/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250731\_021832-ap3mcnoa/files/autoencoderbase\_189\_config.yaml

- VAE up to 199 epochs. Loads best model. RBM training for 50 epochs more.
- Using lan arch
- Adam for RBM
- Getting metrics

swept-lion-488 at: <http://localhost:8080/calovae/calovae/apto0bfc>

/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250729\_183141-apto0bfc/files/autoencoderbase\_99\_config.yaml

- VAE up to 199 epochs. Loads best model. RBM training for 50 epochs more.
- Using Cross-att model
- Adam for RBM
- Getting metrics

still-armadillo-485 at: <http://localhost:8080/calovae/calovae/6pcdc31g>

/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250728\_193726-6pcdc31g/files/autoencoderbase\_189\_config.yaml

- VAE up to 199 epochs. Loads best model. RBM training for 50 epochs more.
- Using Cross-att model
- Getting metrics

expert-dust-475 at: <http://localhost:8080/calovae/calovae/q9cfxrvb>

/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250725\_015032-q9cfxrvb/files/ae\_separate\_249\_config.yaml

- AE up to 199 epochs. Loads best model. RBM training for 50 epochs more.
- Using Leo's v3
- Trained with entropy coefficient zero
- Getting metrics

devoted-donkey-468 at: <http://localhost:8080/calovae/calovae/993qhoh4>

/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250723\_201652-993qhoh4/files/autoencoderbase\_249\_config.yaml

- VAE up to 199 epochs. Loads best model. RBM training for 50 epochs more.
- Using Leo's v3

polar-night-454 at: <http://localhost:8080/calovae/calovae/c22o2vxp>

/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250721\_152921-c22o2vxp/files/ae\_separate\_249\_config.yaml

- AE up to 199 epochs. Loads best model. RBM training for 50 epochs more.
- This is using the exact same arch used in CaloQVAE for current best model.
- Getting metrics

lunar-resonance-453 at: <http://localhost:8080/calovae/calovae/4hns88vo>

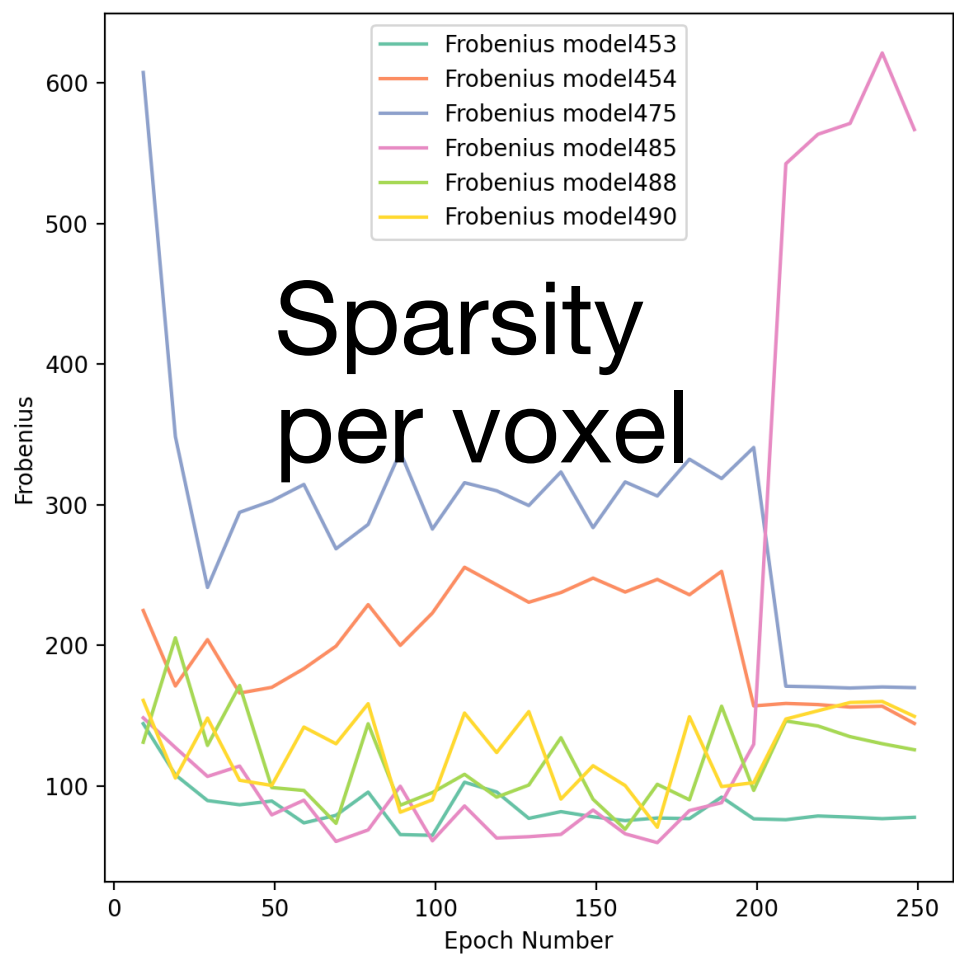
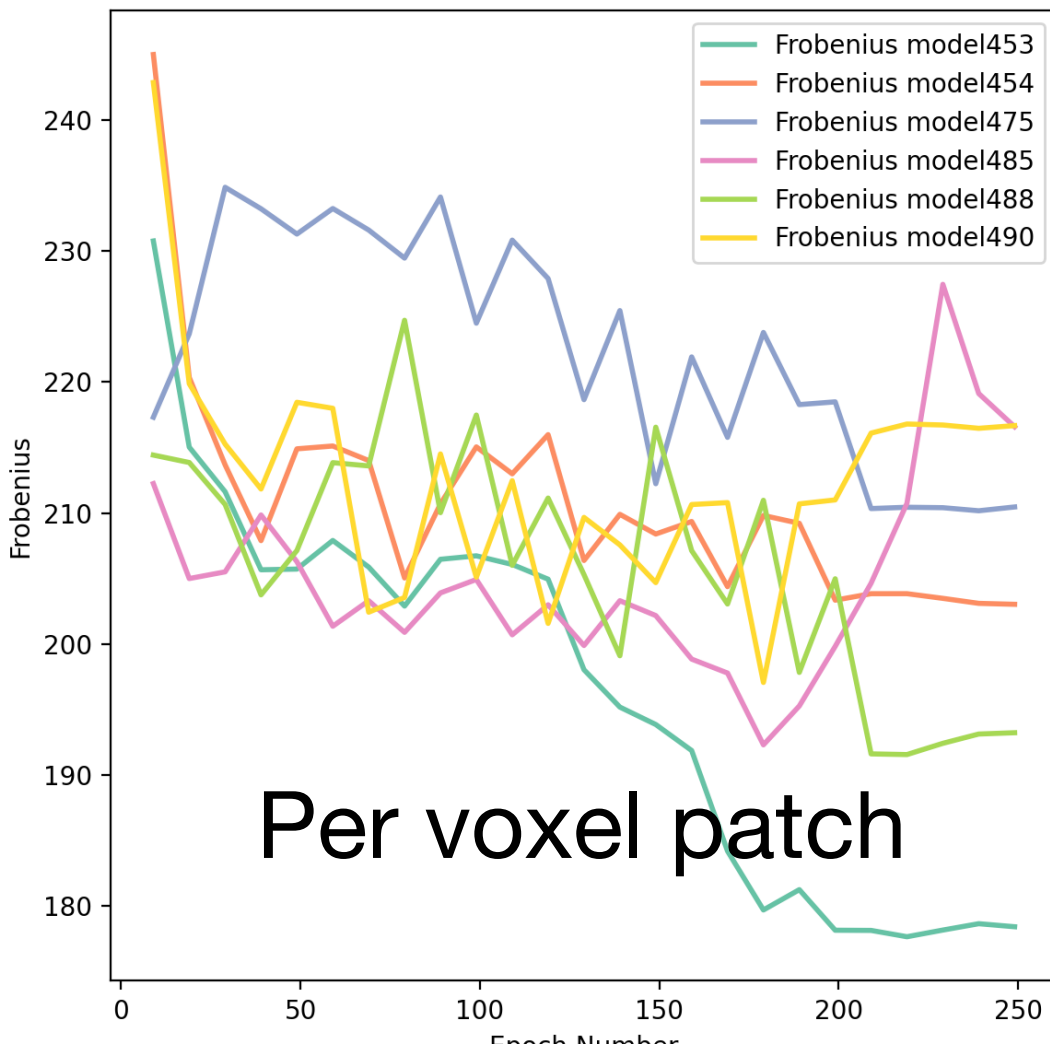
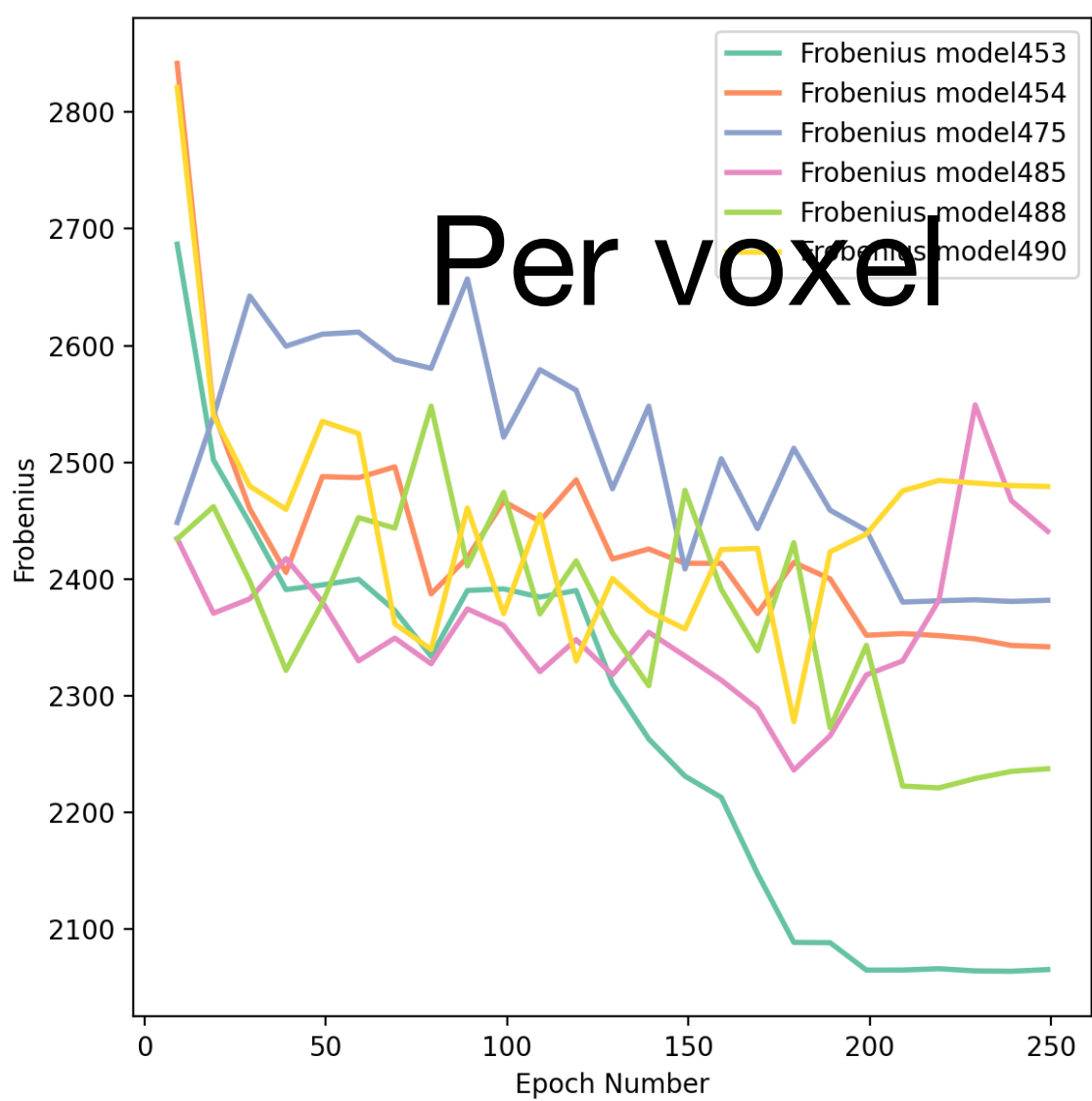
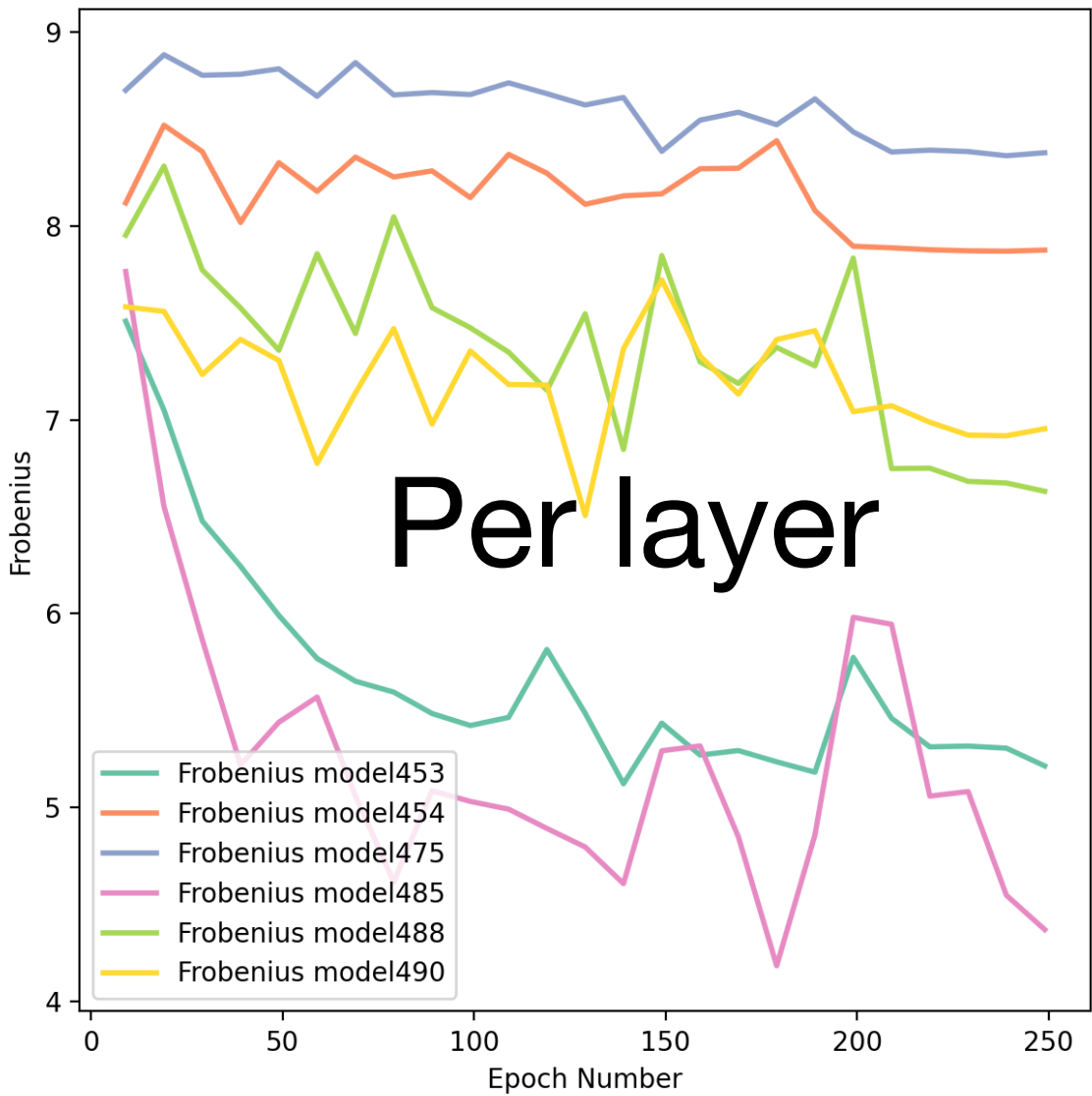
/fast\_scratch\_1/calovae/jtoledo/wandb/run-20250720\_233628-4hns88vo/files/autoencoderbase\_249\_config.yaml

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# CaloQuVAE

## RBM ADAM opt



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swept-lion-488 at: <http://localhost:8080/calovae/calovae/apto0bfc>

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still-armadillo-485 at: <http://localhost:8080/calovae/calovae/6pcdc31g>

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# CaloQuVAE

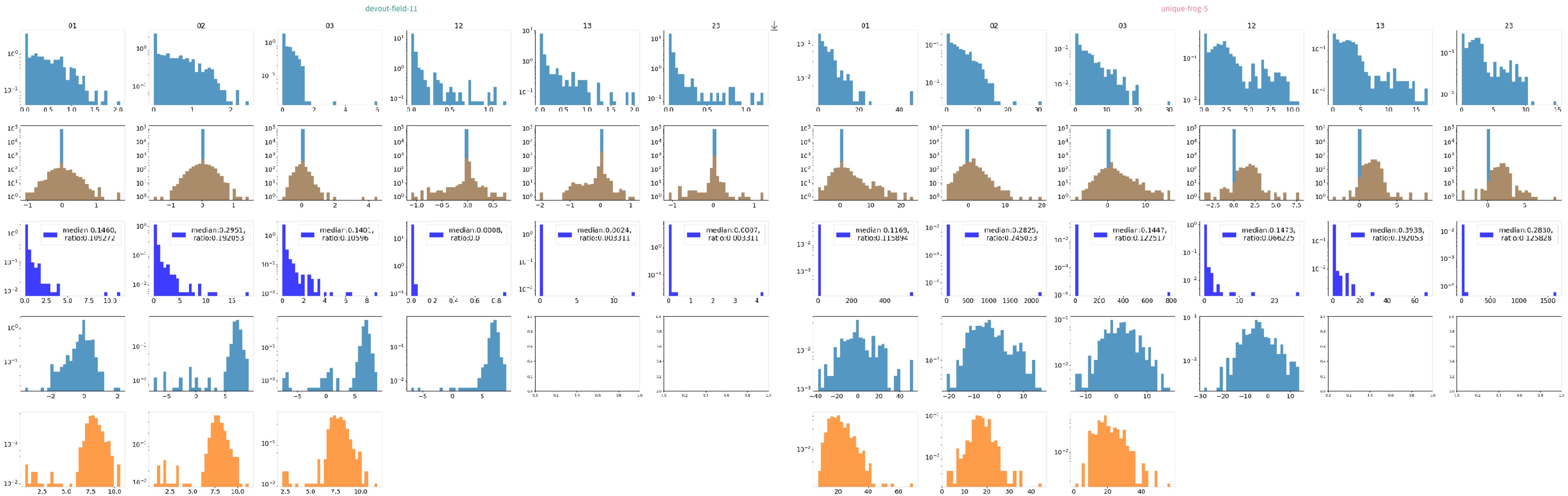
## Next steps

◆ Added a weight regularizer in the RBM

W/ reg

RBM params

W/o reg

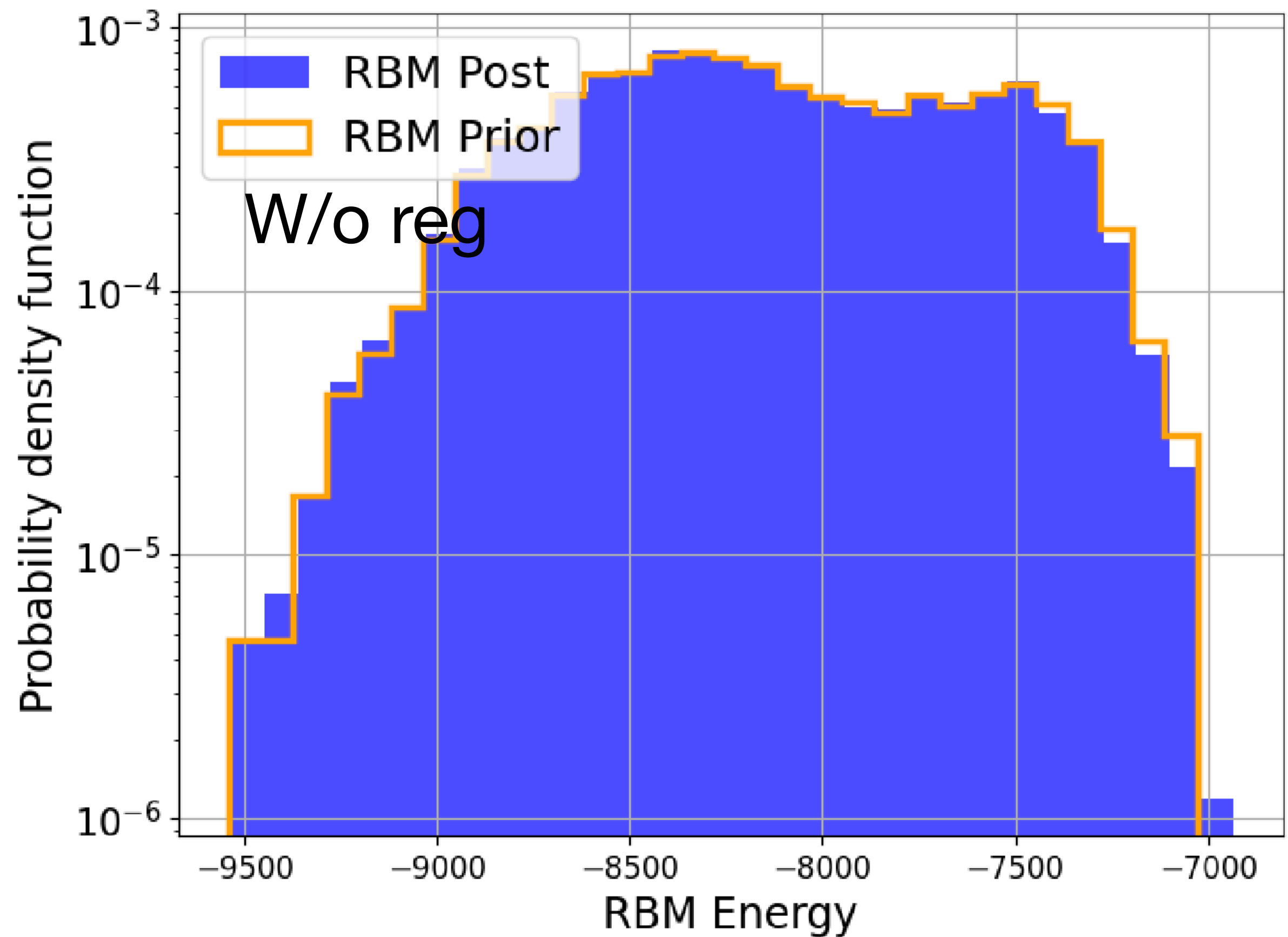
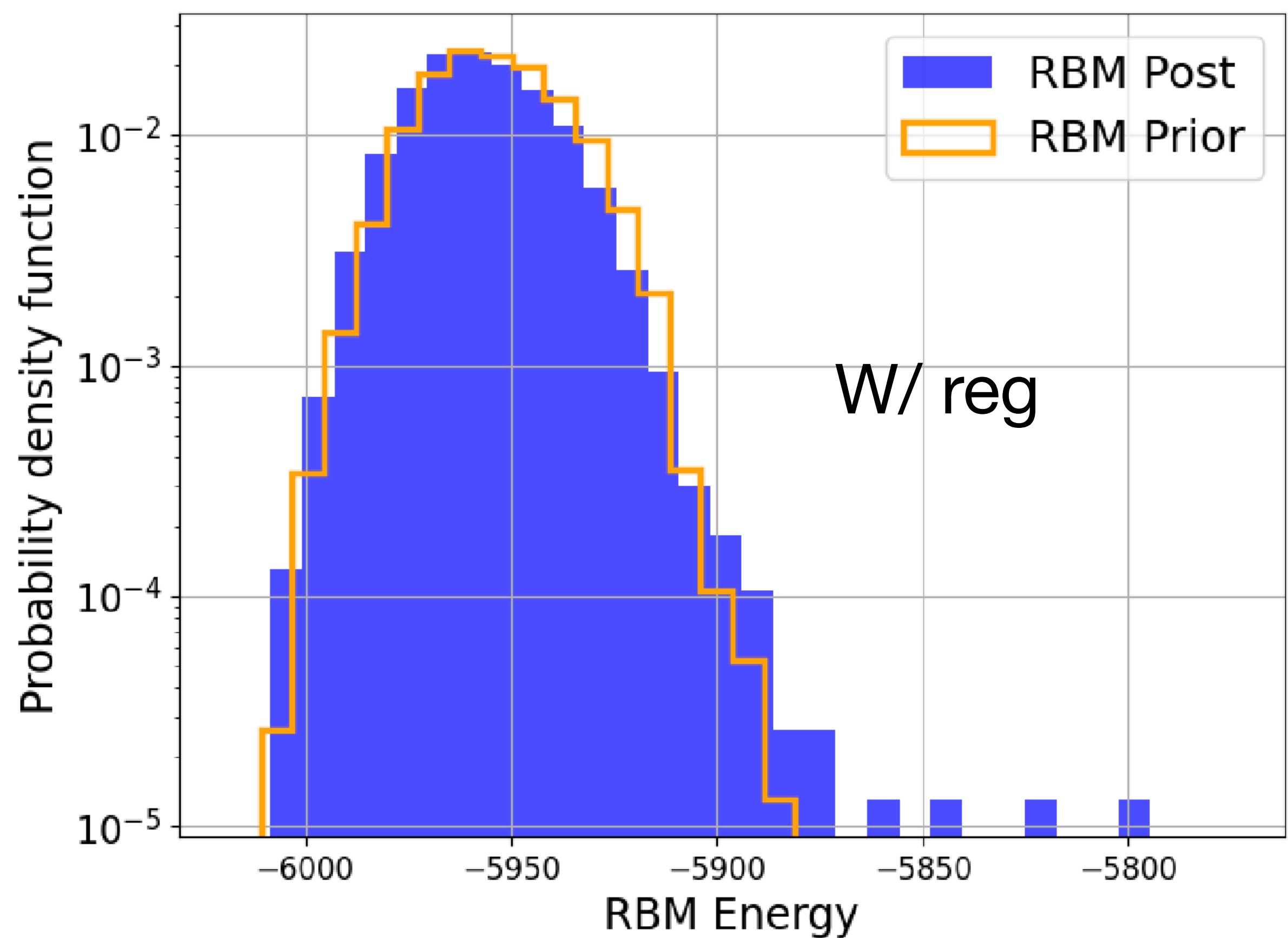




# CaloQuVAE

## Next steps

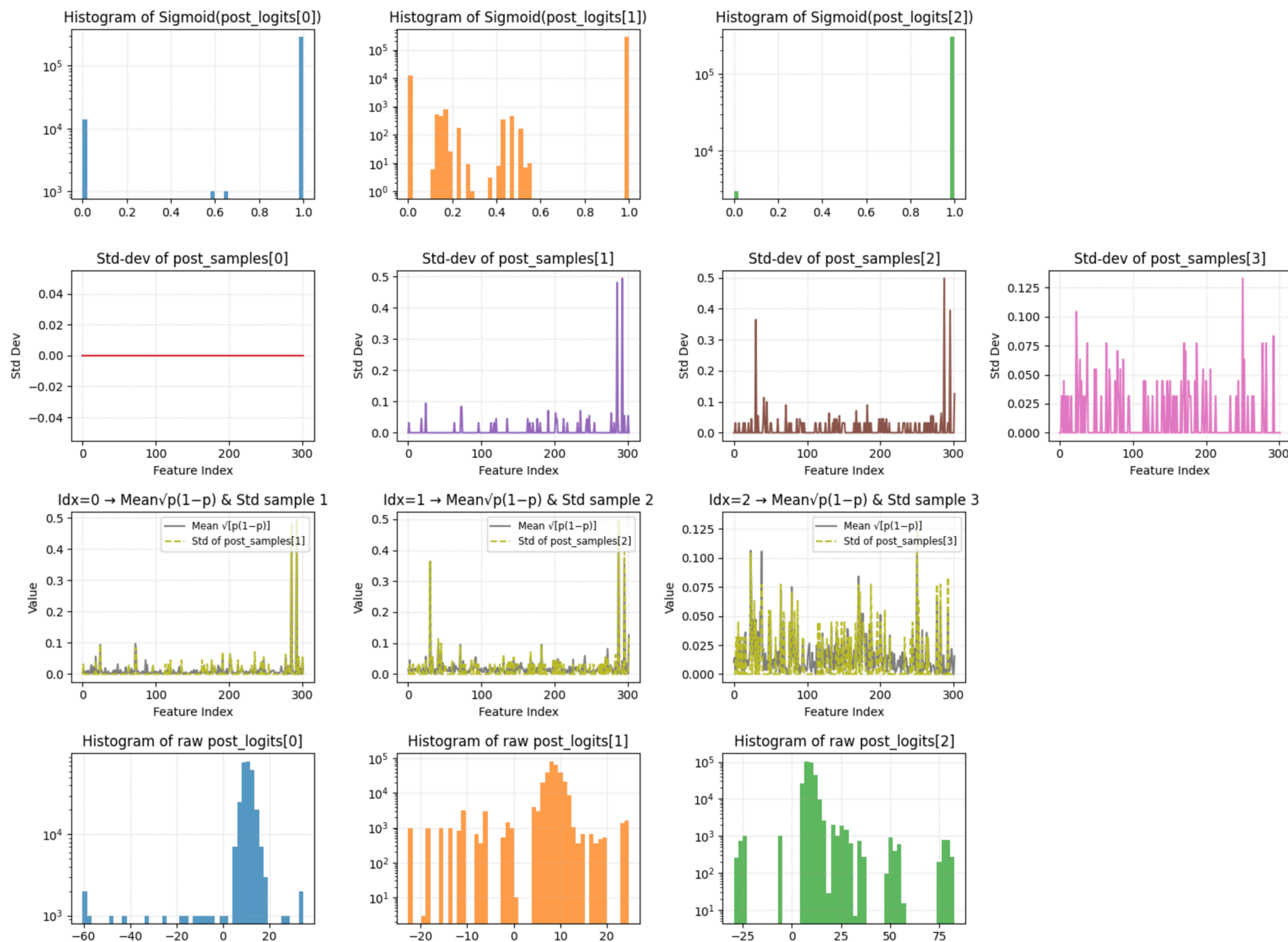
◆ Added a weight regularizer in the RBM



# CaloQuVAE

## Next steps

✦ Added extra plot in wandb





# CaloQuVAE

## Next steps

- ✦ Add hidden layer to RBM