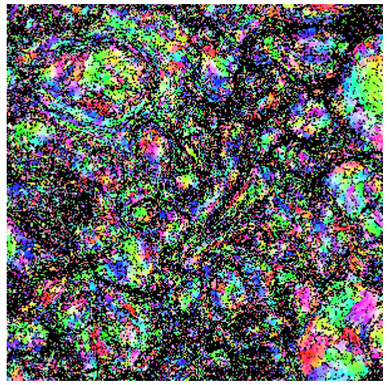
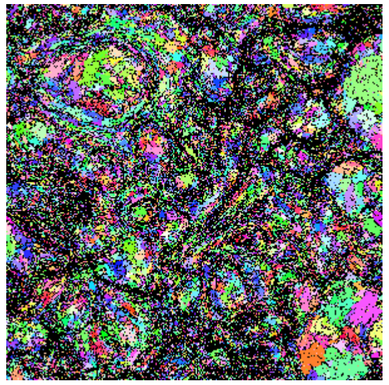
Step 1,2. Import, Segment

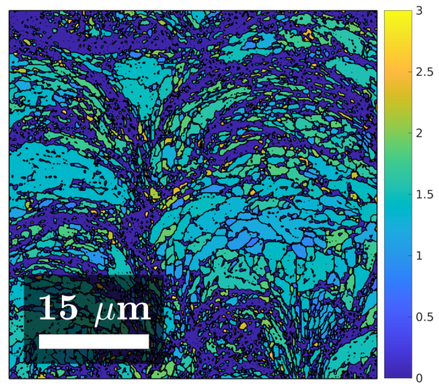


1. EBSD

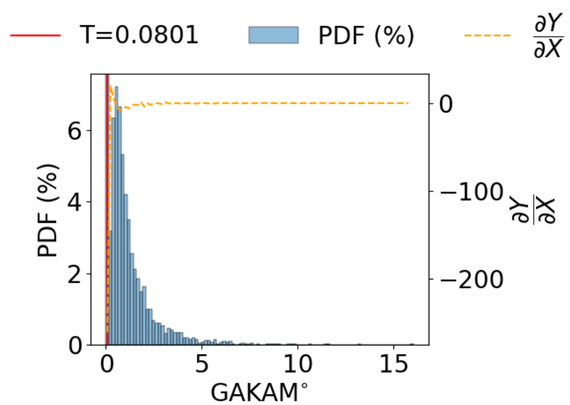


2. Grains

Step 3,4. GAKAM Threshold

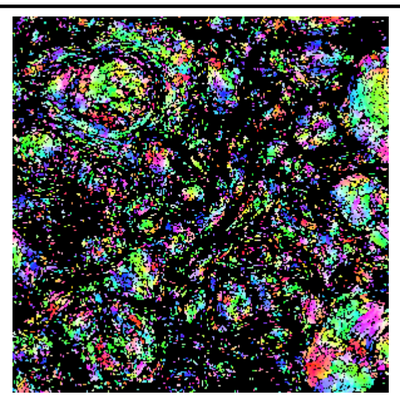


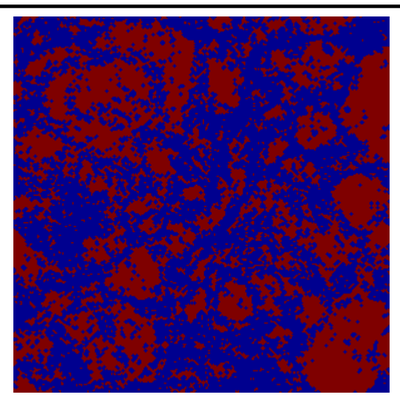
$$GAKAM_g = \frac{1}{N}\sum_{i=1}^{N}\frac{1}{n}\sum_{j=1}^{n}\theta_{ij}$$



$$\left\{\left(\frac{\partial Y}{\partial X}\right)_i\right\} = \left\{\frac{Y_i - Y_{i-1}}{X_i - X_{i-1}}\right\}_{i=2}^{N}$$
$$\{X_i\} = \left\{\frac{X_i - X_{i-1}}{2}\right\}_{i=2}$$

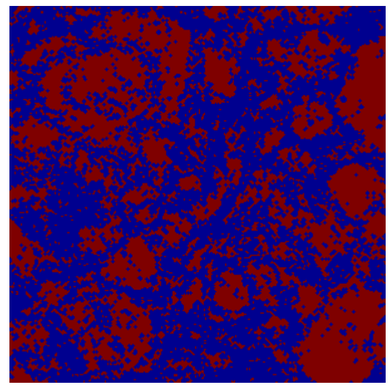
3. $Threshold = \{X_i\}\left(index\left(\left\{\left(\frac{\partial Y}{\partial X}\right)_i\right\} = min\left(\left\{\left(\frac{\partial Y}{\partial X}\right)_i\right\}\right)\right)\right)$



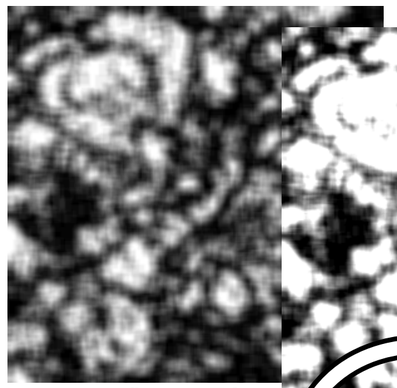


4. $CGs = Grains(GAKAM > threshold)$

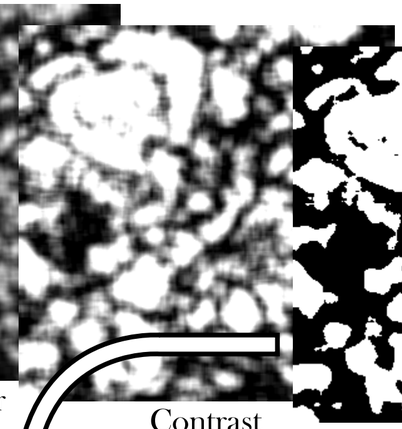
Step 5,6. Grain Cluster Size Filter



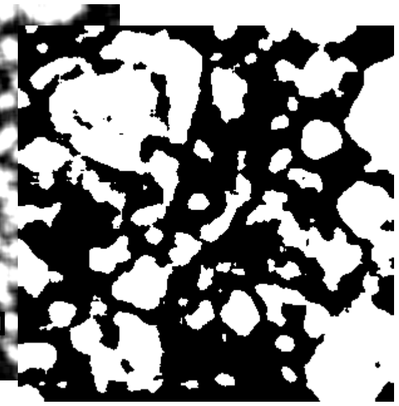
GAKAM Threshold



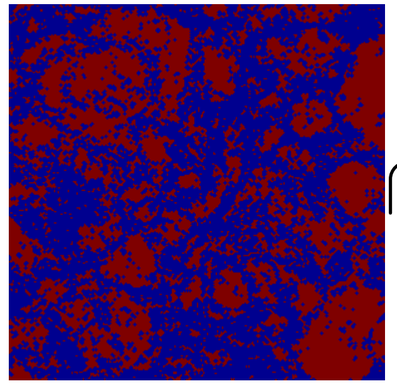
Gauss Blur



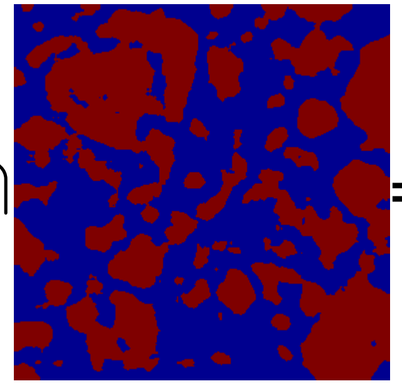
Contrast



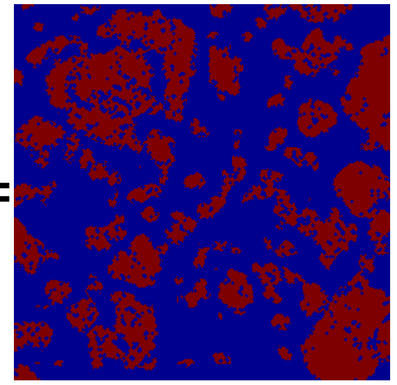
5. Binarize



GAKAM Threshold



Grain Cluster Threshold



GAKAM and Grain Cluster Threshold

Erode/Dilate for:
6. Final Grains