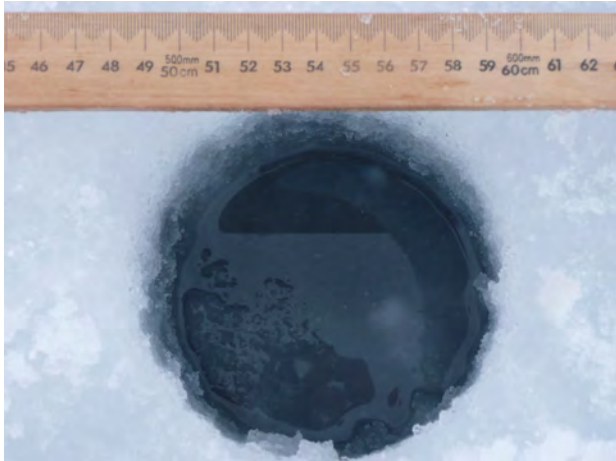
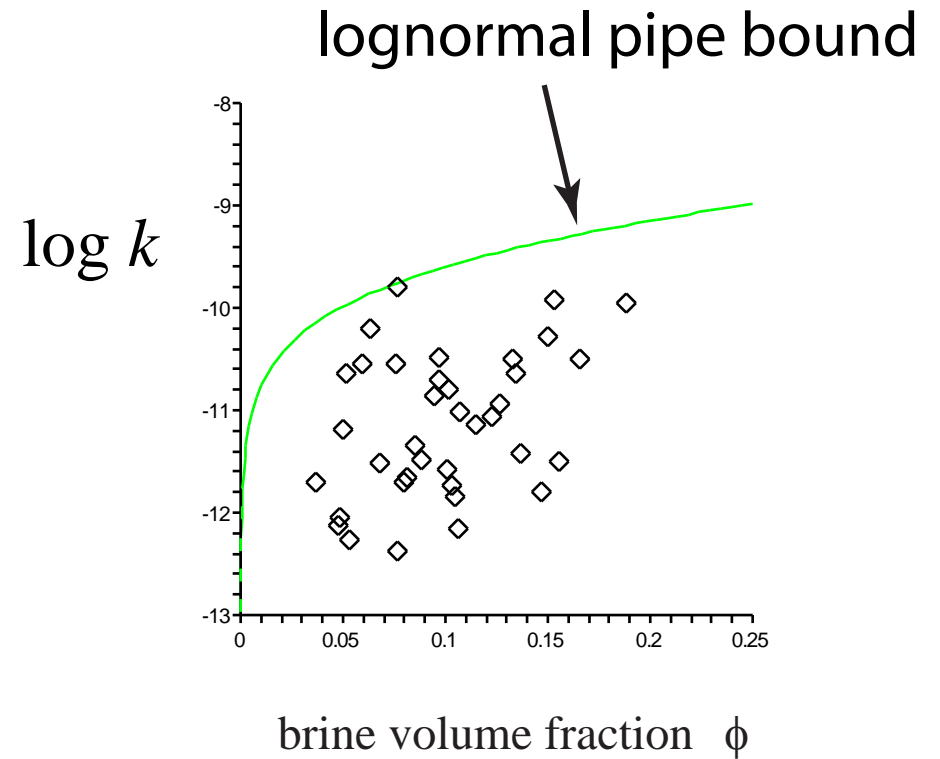
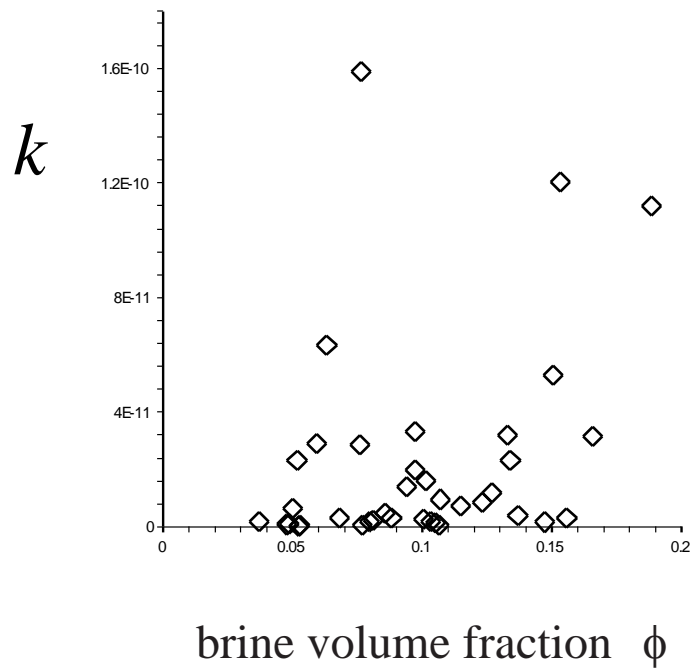


# Measurements of fluid permeability



(Photo by Jan Lieser)

corrected permeability data -- excludes horizontal flow



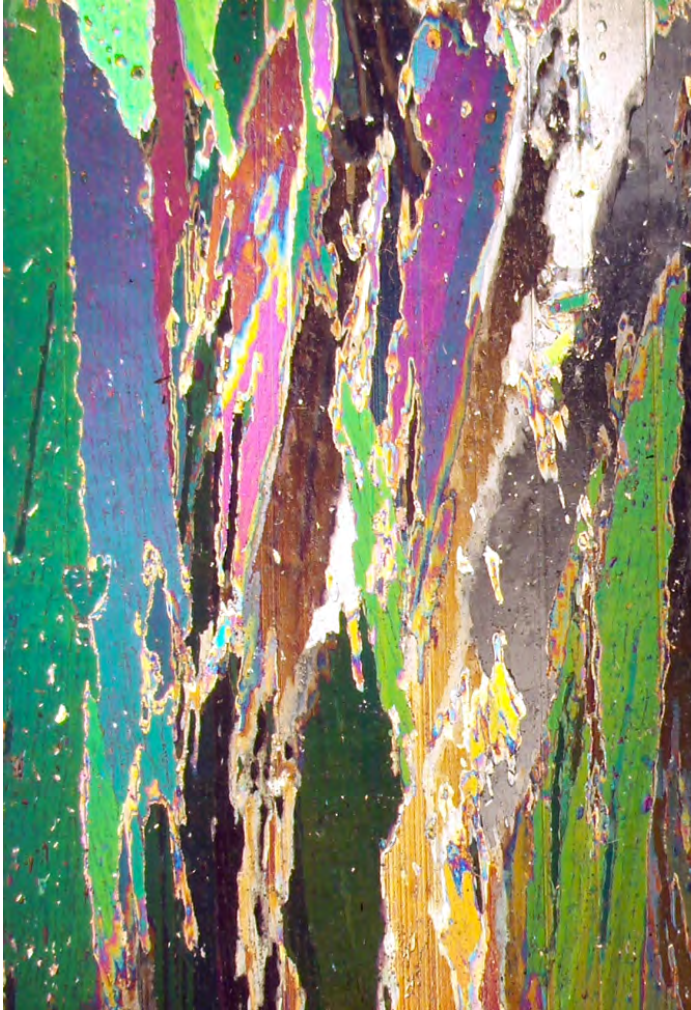


# ***higher threshold for fluid flow in Antarctic granular sea ice***

columnar

granular

**5%**



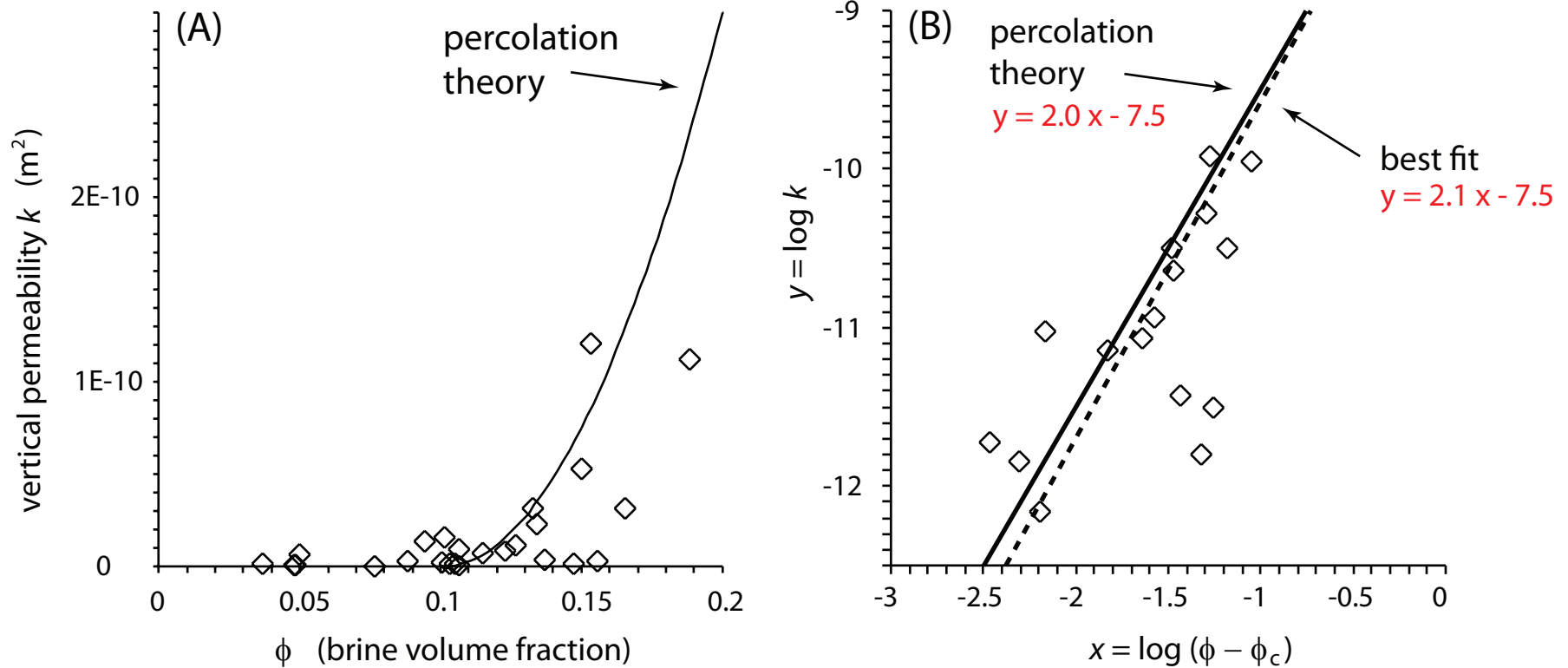
**10%**



different microstructure -- different threshold

***granular ice common in Arctic surface layer***

# permeability data for granular sea ice



$$\frac{1}{1 + \frac{\xi \phi}{4 X_c}}$$

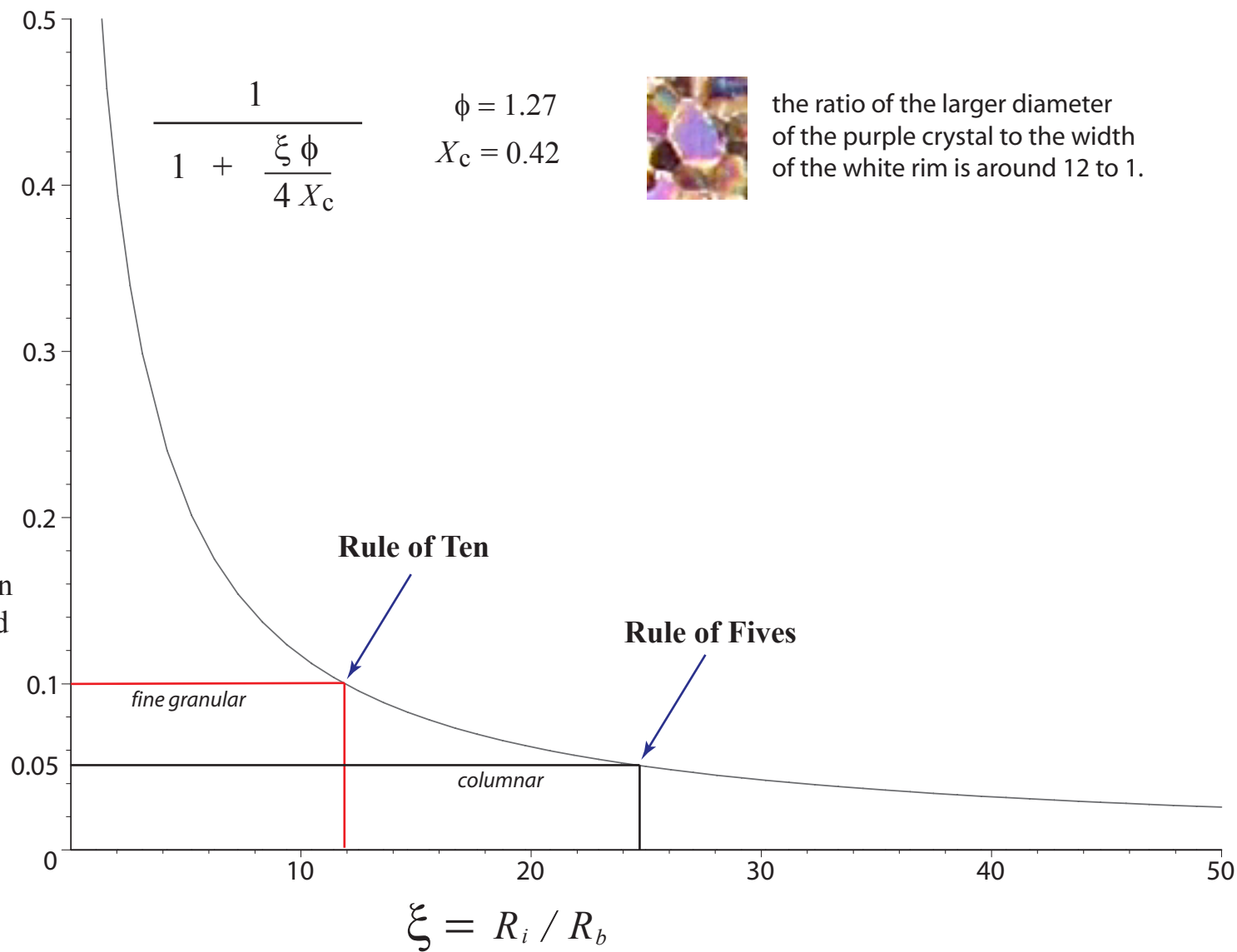
$$\phi = 1.27$$

$$X_c = 0.42$$



the ratio of the larger diameter  
of the purple crystal to the width  
of the white rim is around 12 to 1.

*percolation threshold*  
critical brine volume fraction  
(calculated from compressed  
powder model)



## *crystal data for compressed powder model*

