

PORAVNANJE RAZLIČITIH VRSTA  
MEĐUZVJEZDANE MATERIJE U ŠIREM  
PODRUČJU 3C 196 POLJA

Ana Erceg

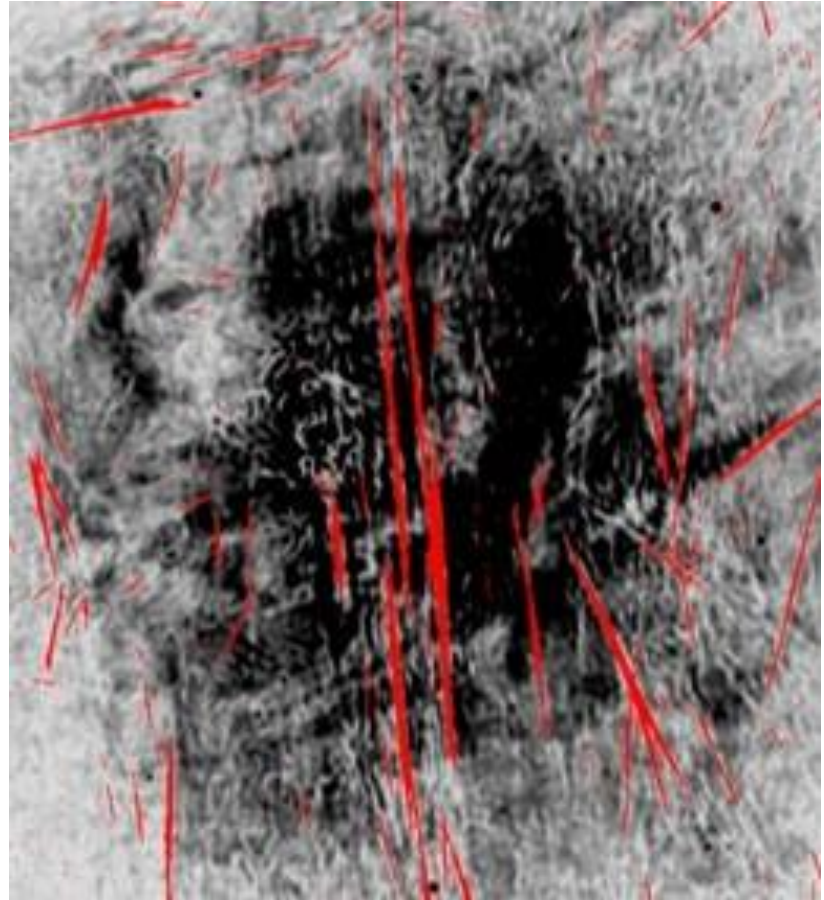
Mentorica: izv. prof. dr. sc. Vernesa Smolčić

29.1.2019.

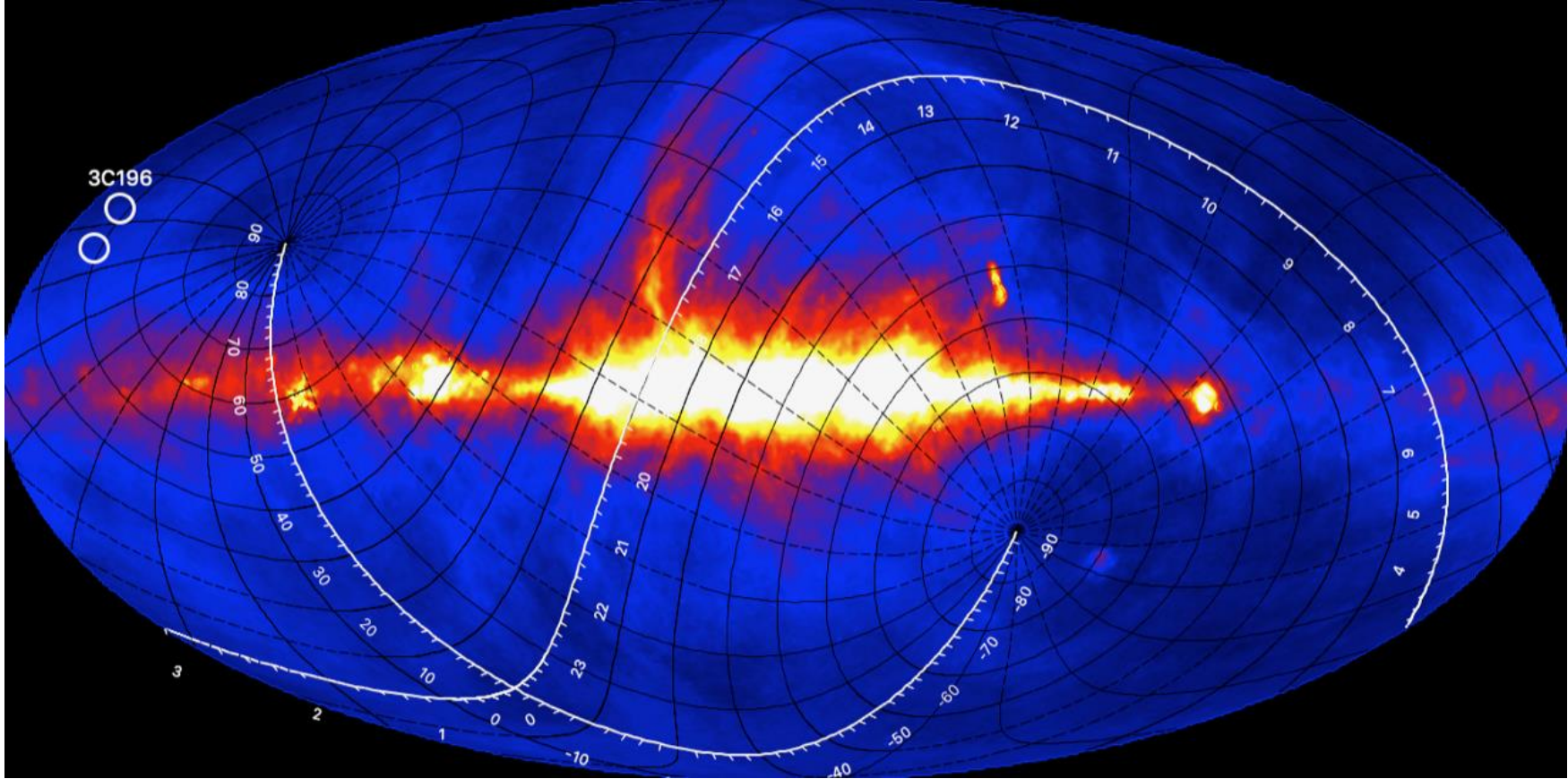
## POLJE 3C 196

Primjećeni dugi, ravni kanali koji u potpunosti depolariziraju zračenje.

Jesu li takvi kanali dio veće strukture?



Jelić et al. (2018)





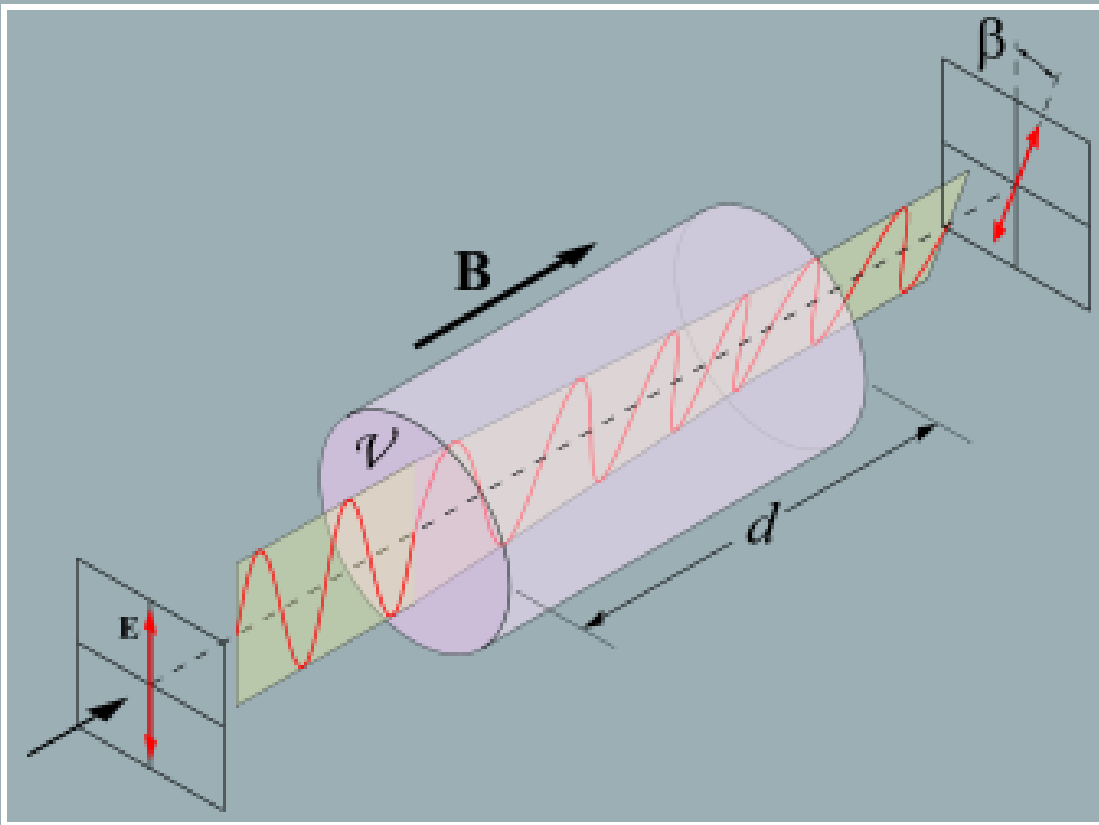
# LOFAR

Radioteleskop

Raspon frekvencija: 30  
MHz – 240 MHz

U rasponu od 100  
MHz do 200 MHz  
primjećujemo  
depolarizirane kanale





## FARADAYEVA ROTACIJA

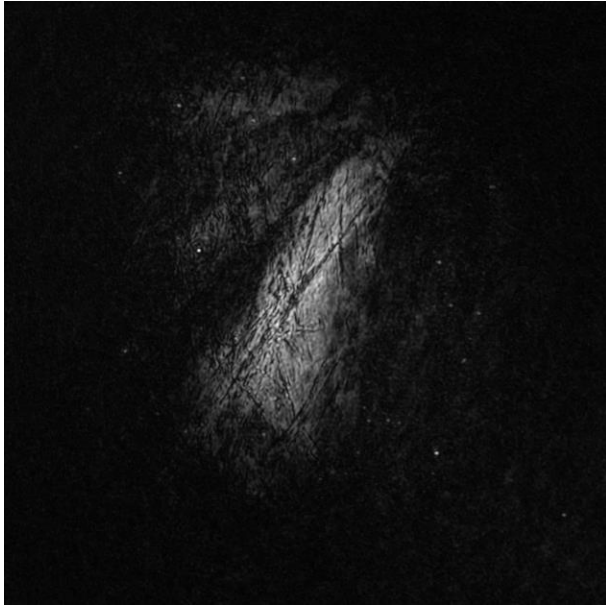
Rotacija ravnine polarizacije zračenja pri prolasku kroz međuzvezdanu materiju.

Stvara ju magnetsko polje paralelno smjeru propagacije zračenja.

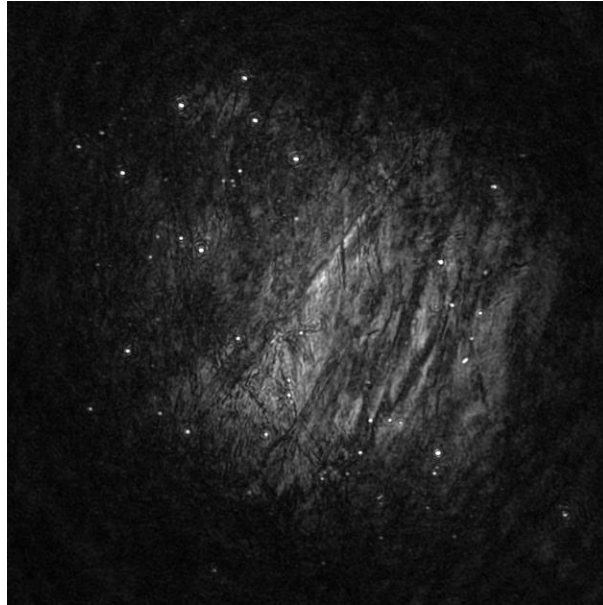
$$\Phi = 0.81 \int n_e B_{||} dl$$



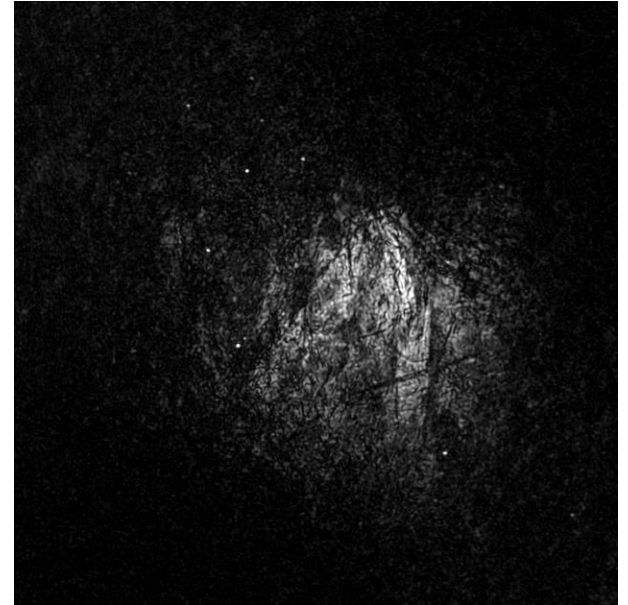
Strukture na Faradayevim dubinama od  $-7 \text{ rad/m}^2$  do  $-1 \text{ rad/m}^2$ .



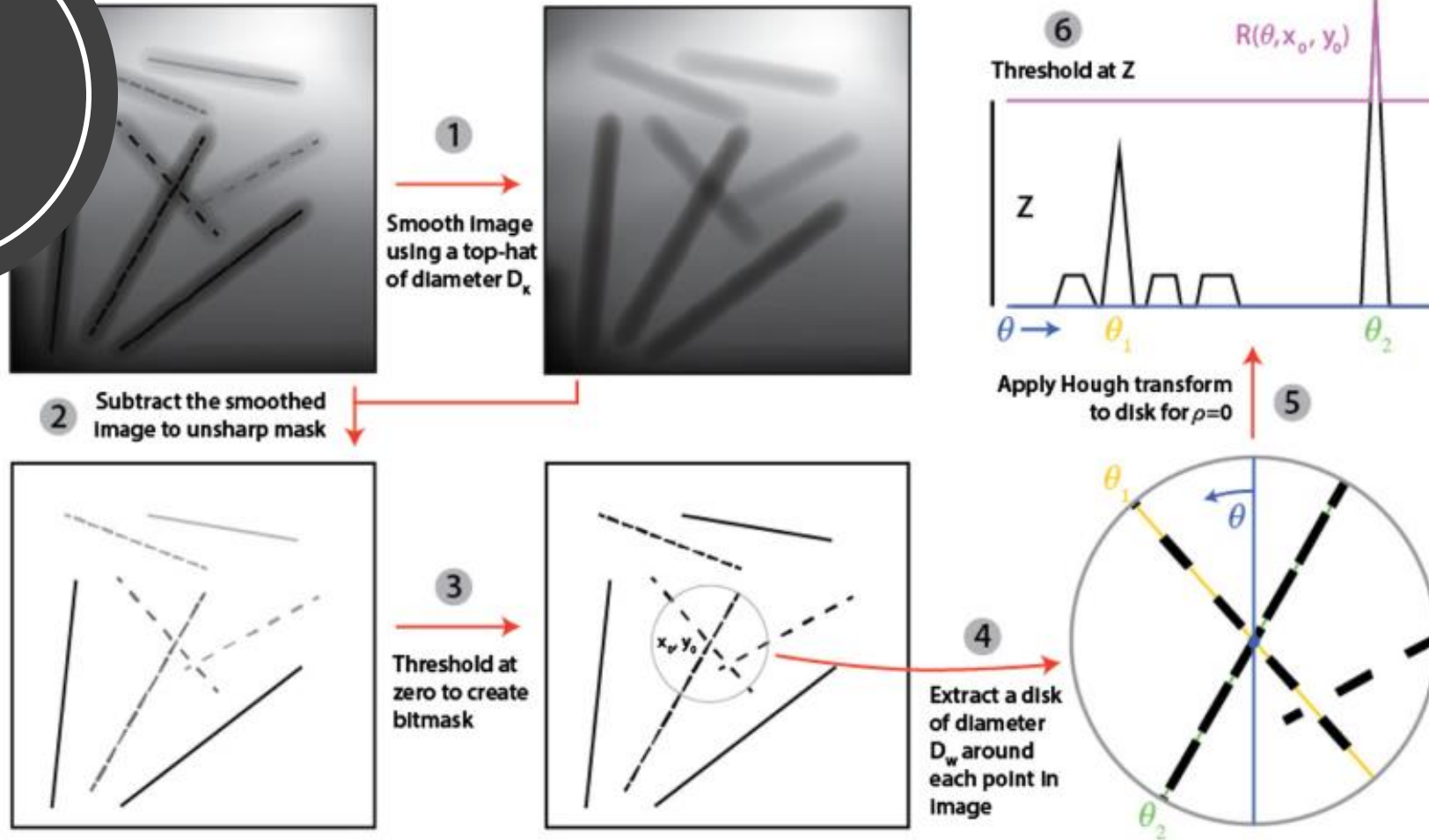
Strukture na Faradayevim dubinama od  $-0.75 \text{ rad/m}^2$  do  $3 \text{ rad/m}^2$ .



Strukture na Faradayevim dubinama od  $3.25 \text{ rad/m}^2$  do  $7 \text{ rad/m}^2$ .



# RHT



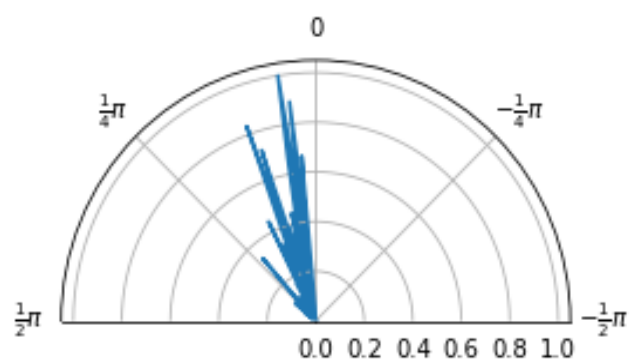
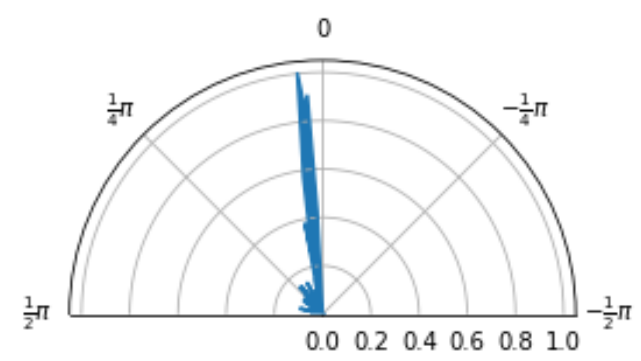
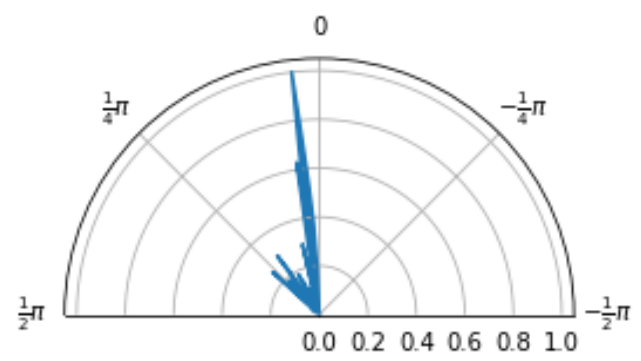
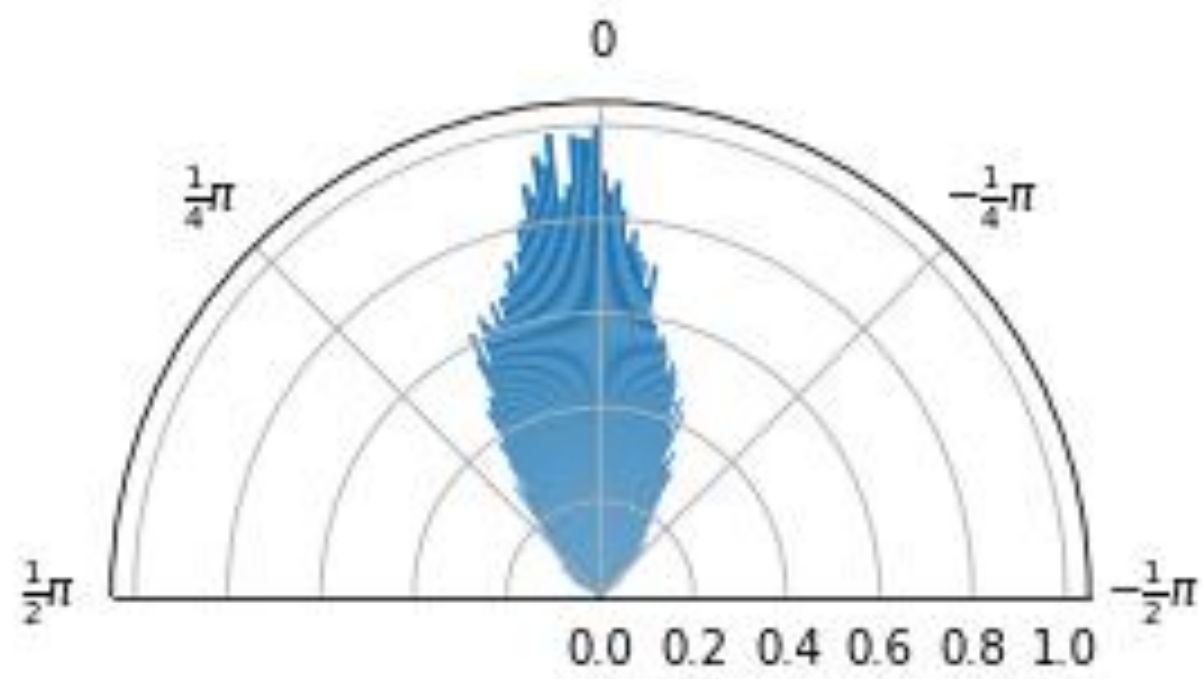
# ROLLING HOUGH TRANSFORMAT

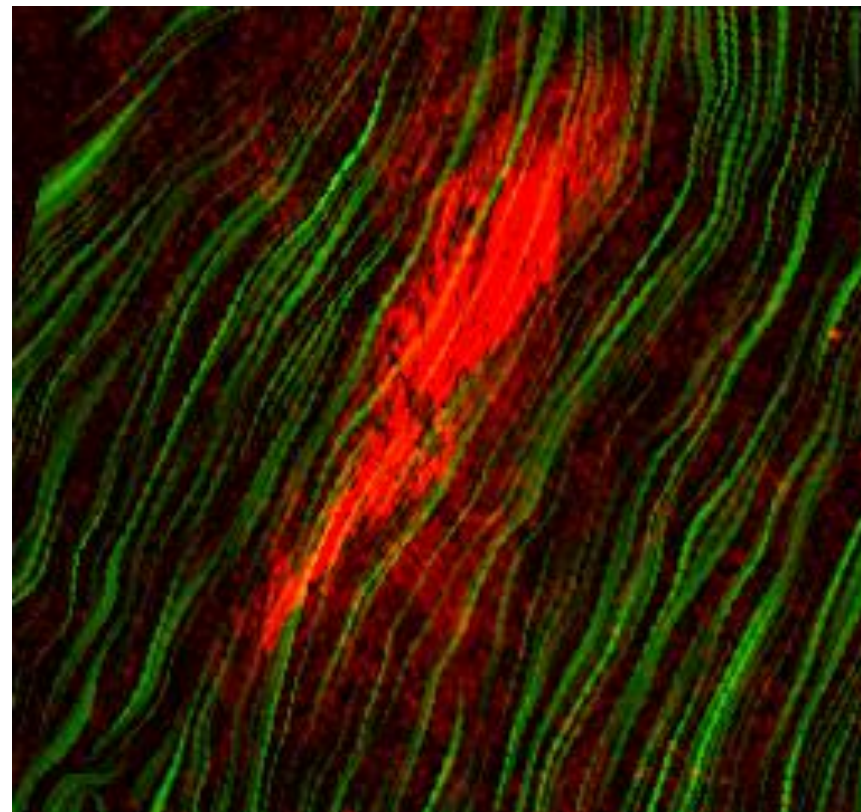
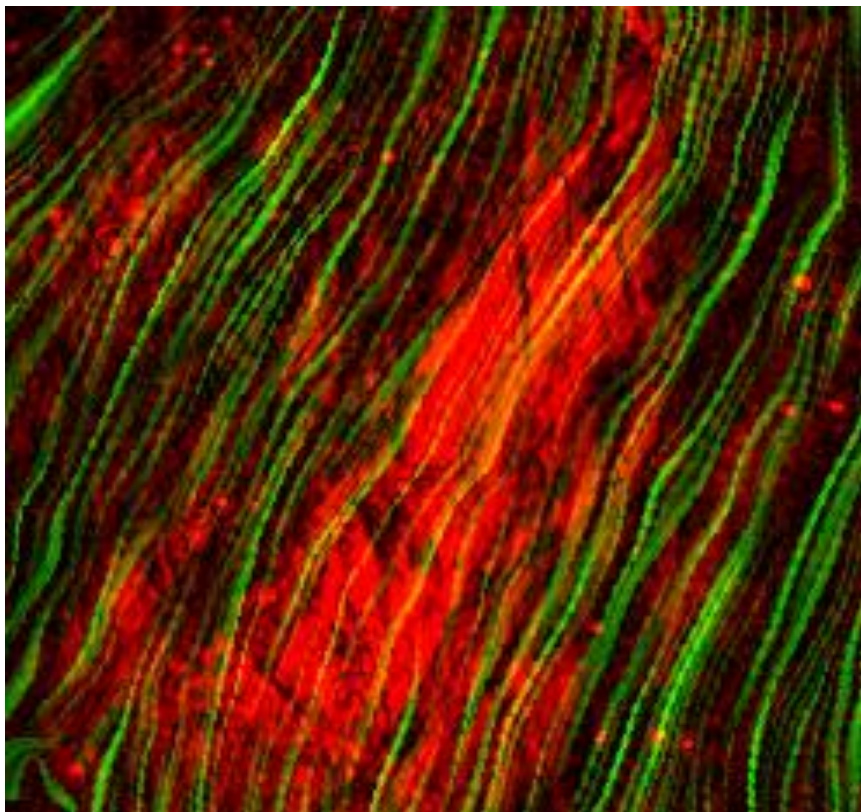
Algoritam stvoren za otkrivanje ravnih linija na slici.

Integracijom po cijeloj slici dobivamo informaciju o orijentaciji ravnih linija.

$$\tilde{R}(\theta) = \frac{1}{N} \int \int R(\theta, x, y) dx dy$$



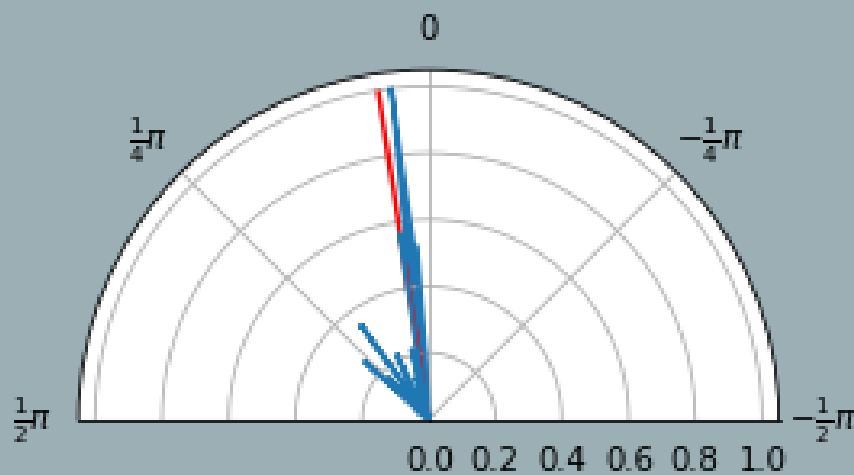




USPOREDBA STRUKTURA SA SMJEROM  
SILNICA MAGNETSKOG POLJA

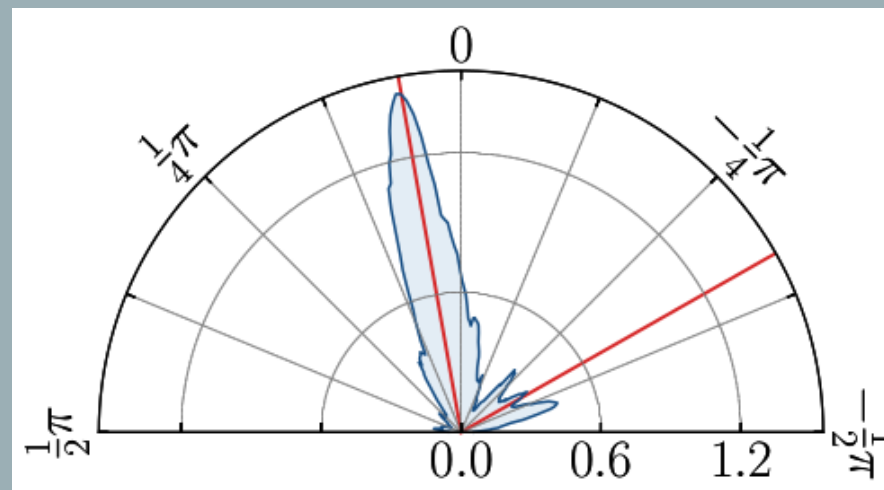
# USPOREDBA S REZULTATIMA ZA POLJE 3C 196

NAŠE POLJE



$$\langle \theta \rangle = 9^\circ, \delta\theta = \pm 21^\circ$$

POLJE 3C 196



$$\langle \theta \rangle = 10^\circ, \delta\theta = \pm 6^\circ$$