

# *AST310 GÜNEŞ FİZİĞİ*

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**11. Kısım**

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Kutluay Yüce: "Ders amaçlı notlar; çoğaltılamaz."

# **Güneş Lekeleri Oluşum Modelleri & Babcock & Dinamo Modeli**

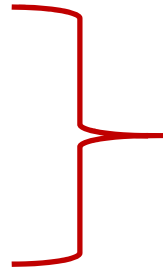
## Güneş lekelerinin oluşumu üzerine bazı modeller

•Bjerkness Modeli

•Biermann Modeli

•Babcock Model

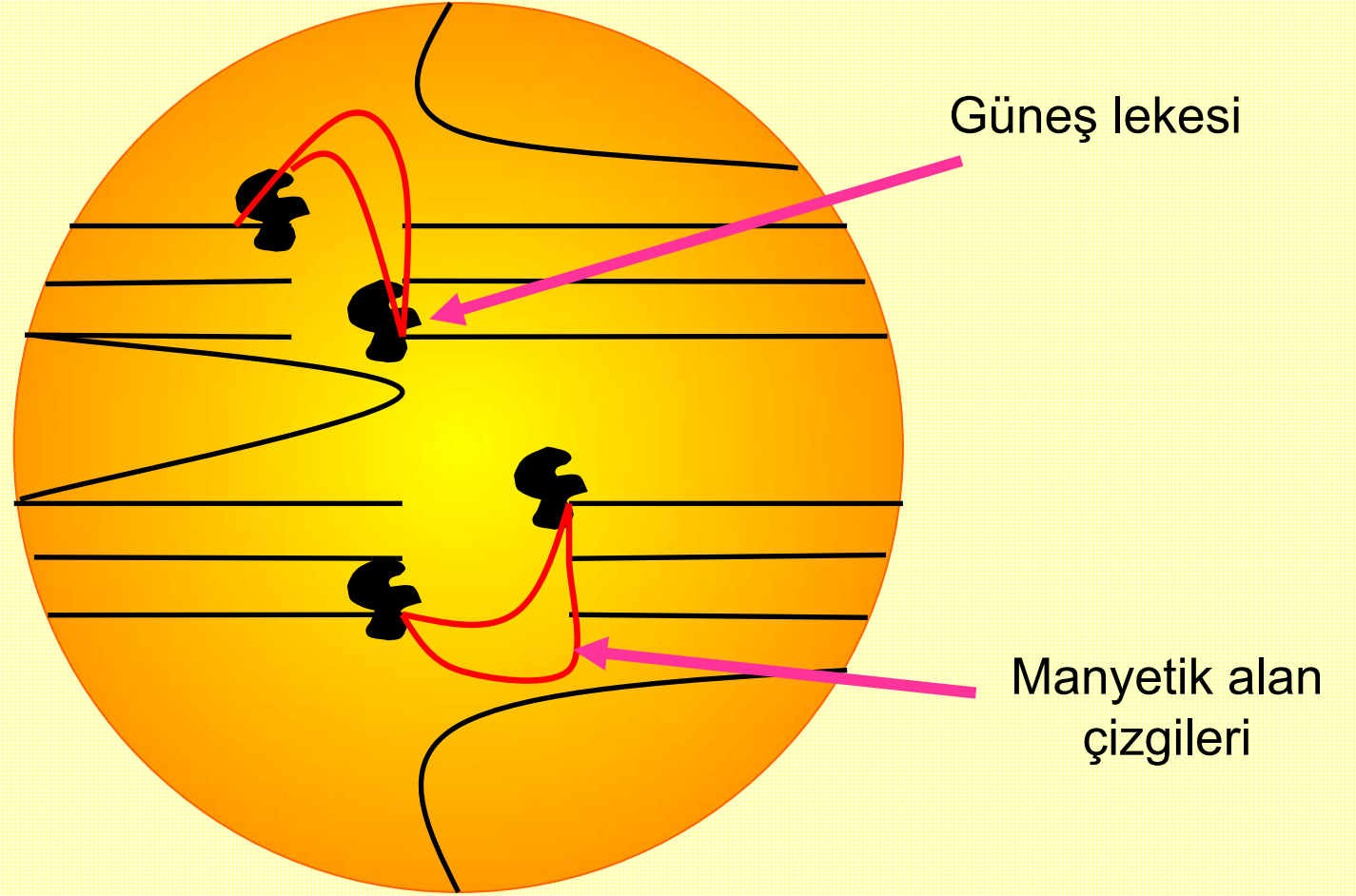
•Allen Model



✓ Dinamo Modeli

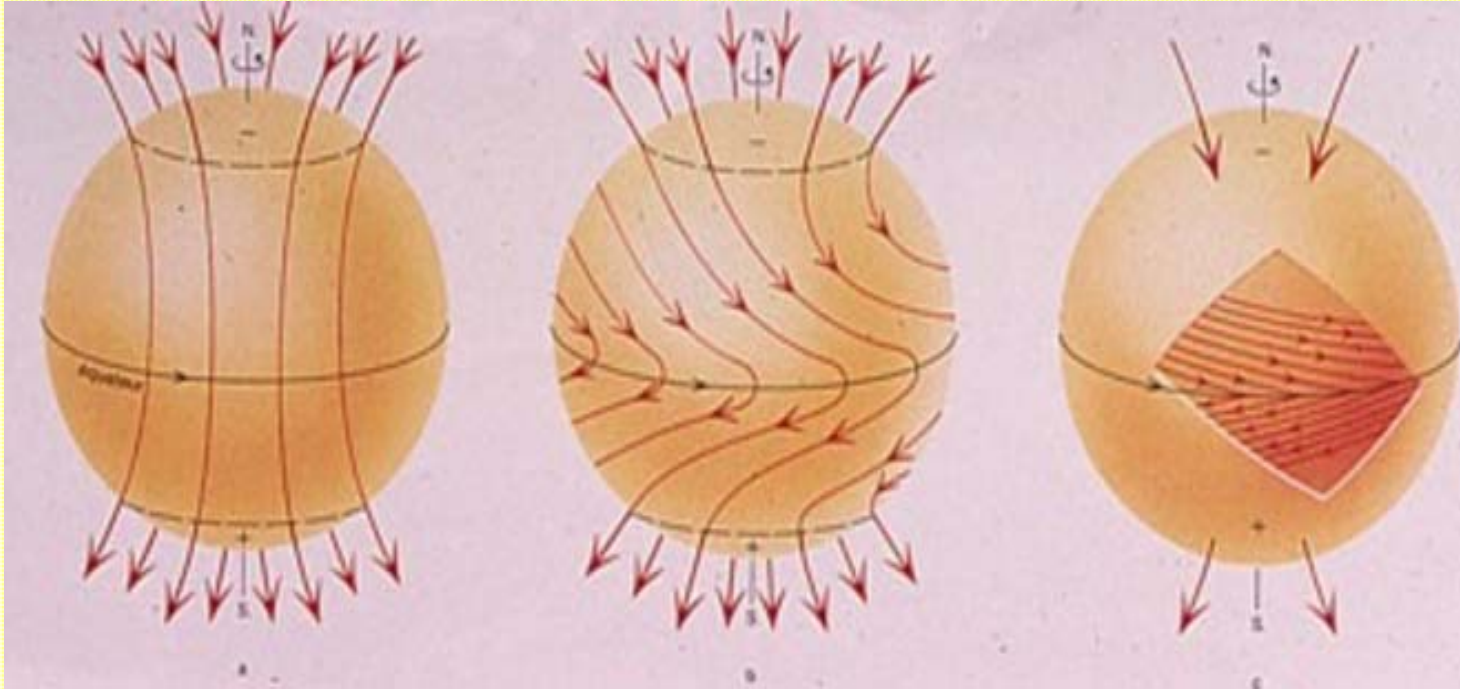
# Güneş lekelerinin oluşum modeli

## Dinamo Teorisi & Babcock Modeli



# Güneş lekelerinin oluşum modeli

## - Dinamo Teorisi & Babcock Modeli -



Kaynak: Addison Wesley Longman, Inc.

# (Babcock & Babcock, 1955)

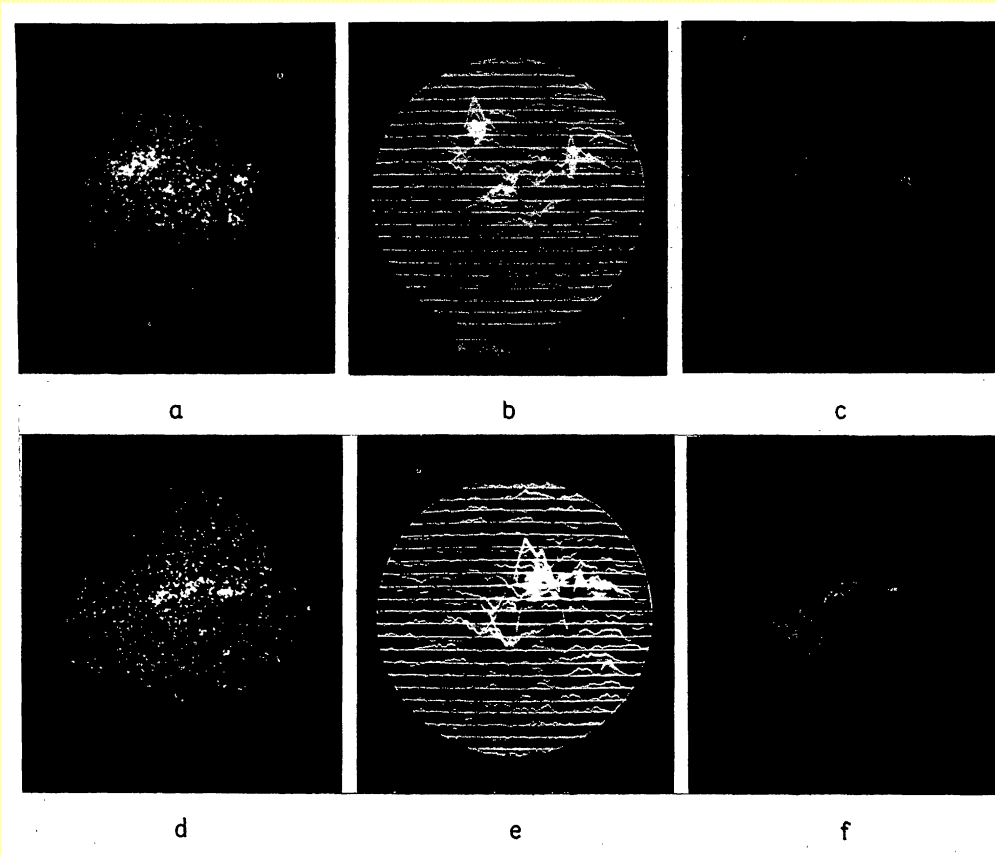
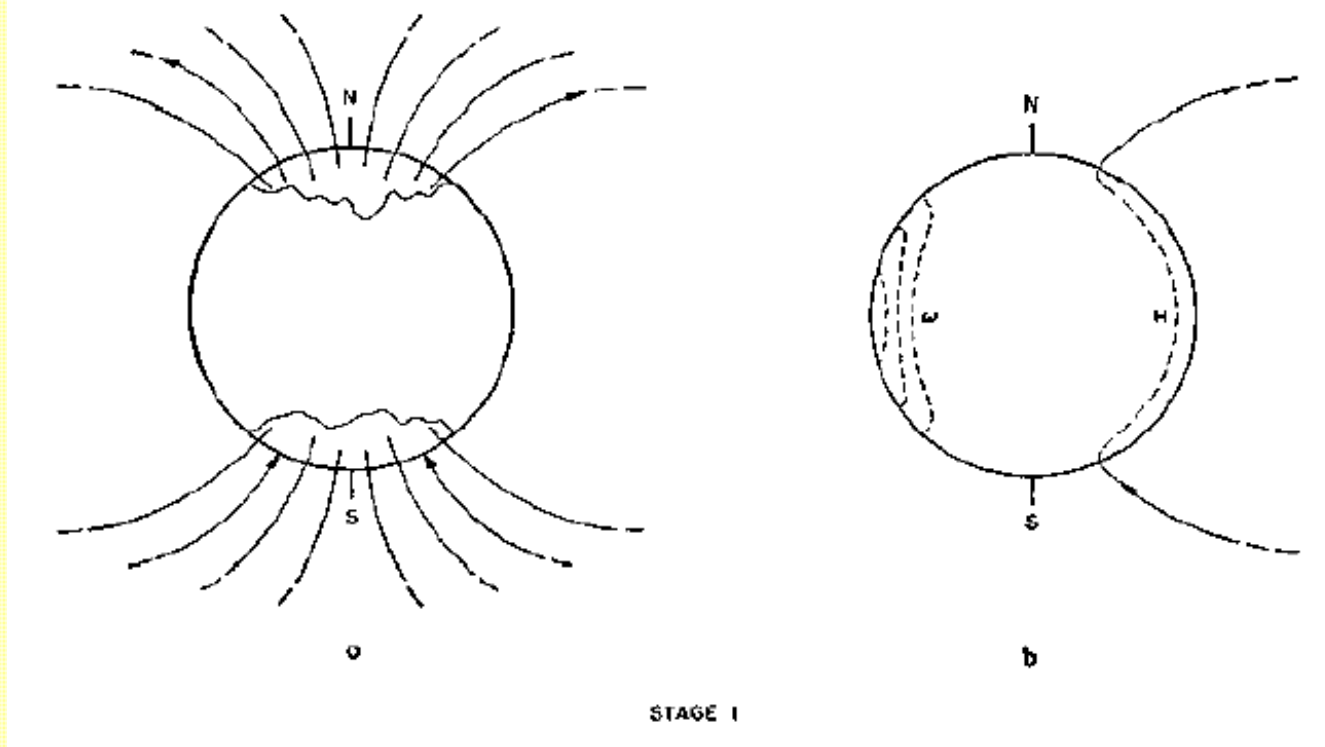


FIG. 7.—A magnetogram (*b*) is shown between (*a*) a *Ca II* and (*e*) an *H $\alpha$*  spectroheliogram, all for May 26, 1953. The lower row shows a similar array for October 27, 1953. Note the *Ca II* *plages* wherever  $H \gtrsim 2$  gauss. Some of the dark hydrogen filaments appear to define the locus of the tops of the arching lines of force of the BM fields.

# Güneş lekelerinin oluşum modeli

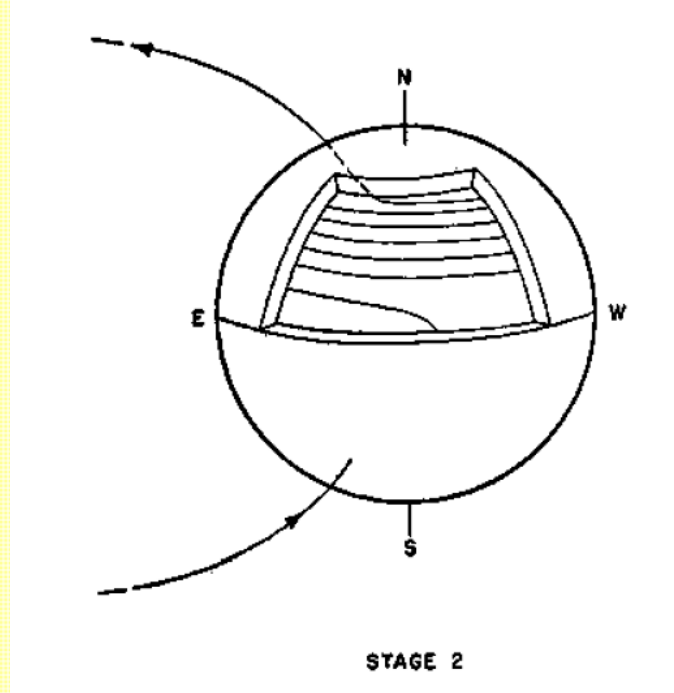
## - Dinamo Teorisi & Babcock Modeli -



- ✓ Çift kutuplu boylamsal (bileşeni) manyetik alan çizgileri

# Güneş lekelerinin oluşum modeli

## - Dinamo Teorisi & Babcock Modeli -



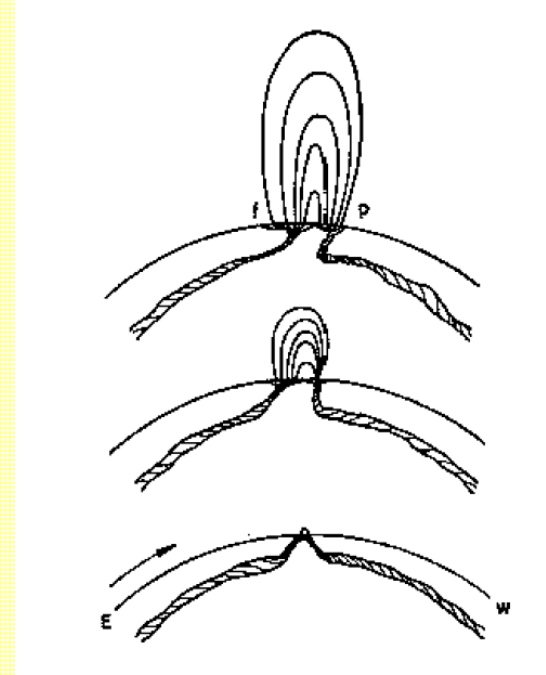
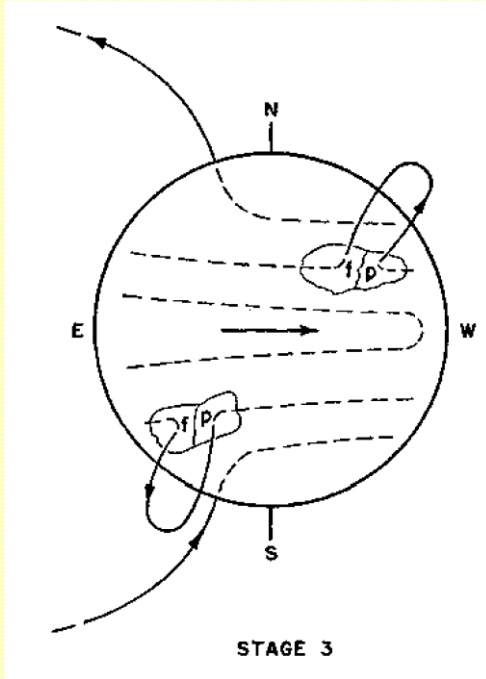
- ✓ Çift kutuplu boylamsal manyetik alan + diferansiyel dönme ile güçlendirme

↓  
Sarmal yapıda enlemsel bileşenlerin oluşumu

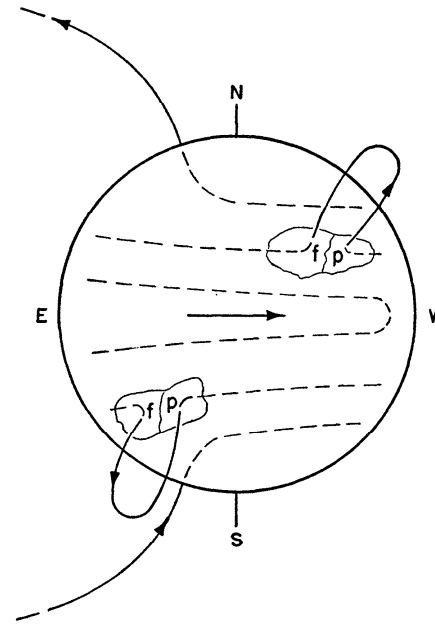
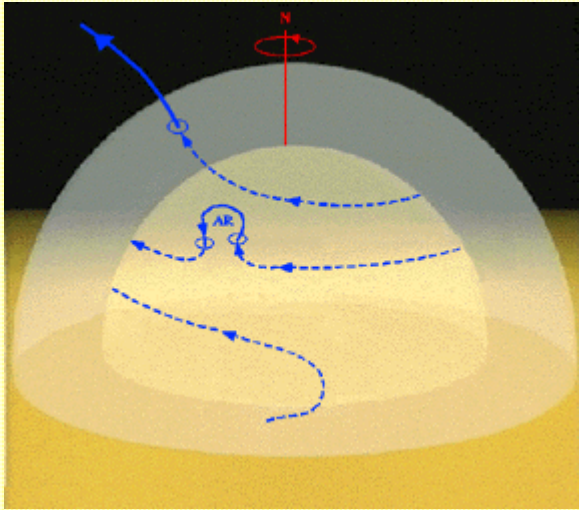


# Güneş lekelerinin oluşum modeli

## - Dinamo Teorisi & Babcock Modeli -



- ✓ Manyetik alanlar, manyetik kaldırma gücü ve 'bipolar' aktif alanların ortaya çıkması



STAGE 3

FIG. 3.—Bipolar magnetic regions (BMR's) are formed where buoyant flux loops of the submerged toroidal field are brought to the surface. The BMR's continue to expand, and the flux loops rise higher into the corona

## Bilimsel amaçlı ilk duyurusu

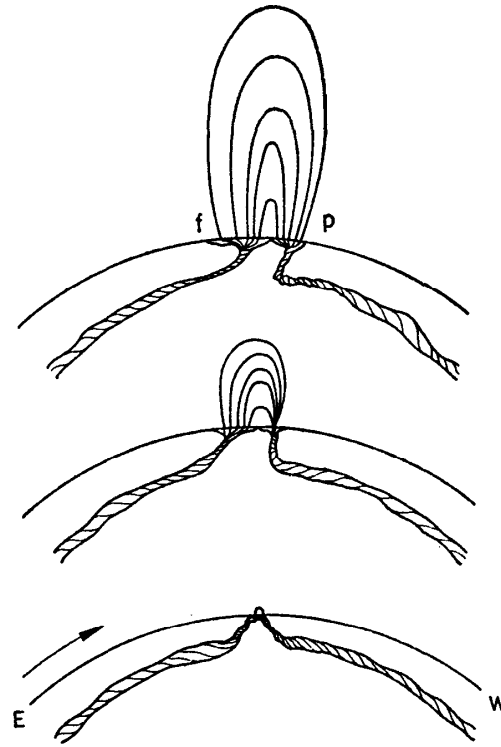


FIG 5.—Formation of a BMR occurs when a constriction in a submerged flux rope is brought to the surface by magnetic buoyancy. *Lower:* the region is compact and symmetric; it may quickly produce spots and other forms of “activity” in both  $p$  and  $f$  parts. *Middle:* some days later, all the magnetic flux arches into the atmosphere, and on the surface the lines of force have begun to spread out. Differential rotation has advanced the BMR with respect to the submerged flux rope, so that the  $p$  part is more compact and has a higher field strength; spots are therefore more likely to be found within it. *Upper:* the  $p$  and  $f$  parts of the BMR continue to spread, and, as the field intensity diminishes, flocculi and other evidences of activity gradually disappear. Flow of plasma along the flux rope into the expanding BMR has resulted in new constrictions which may produce additional BMR’s in the near vicinity.