

**COMPLETE LIST OF PUBLICATIONS**  
**OF**  
**ARNAB RAI CHOUDHURI**

**Publications (Book) :**

*The Physics of Fluids and Plasmas: An Introduction for Astrophysicists*  
Arnab Rai Choudhuri (1998)  
Cambridge University Press.

**Publications (Edited book) :**

*IAU Colloquium 179. Cyclical Evolution of Solar Magnetic Fields: Advances in Theory and Observations*  
Eds.: P. Venkatakrisnan, Oddbjorn Engvold and Arnab Rai Choudhuri (2000)  
Special issue of *Journal of Astrophysics and Astronomy*, Vol. 21.

**Publications (Papers) :**

1. "The effect of closed boundary conditions on a stationary dynamo"  
A. R. Choudhuri (1984)  
*Astrophysical Journal* **281**, pp. 846–853.
2. "Force-free equilibria of magnetized jets"  
A. Königl and A. R. Choudhuri (1985)  
*Astrophysical Journal* **289**, pp. 173–187.  
[“Erratum” in *Astrophysical Journal* **305**, p. 954.]
3. "A model of the polarization position-angle swings in BL Lacertae objects"  
A. Königl and A. R. Choudhuri (1985)  
*Astrophysical Journal* **289**, pp. 188–192.
4. "Practising Western science outside the West: Personal observations on the Indian scene"  
A. R. Choudhuri (1985)  
*Social Studies of Science* **15**, pp. 475–505.
5. "The dynamics of magnetically trapped fluids. I. Implications for umbral dots and penumbral grains"  
A. R. Choudhuri (1986)  
*Astrophysical Journal* **302**, pp. 809–825.
6. "Magnetic energy dissipation in force-free jets"  
A. R. Choudhuri and A. Königl (1986)  
*Astrophysical Journal* **310**, pp. 96–103.

7. “Magnetic helicity as a constraint on coronal dissipation”  
A. R. Choudhuri (1986)  
In *Coronal and Prominence Plasmas (NASA CP 2442)* (ed.: A. I. Poland), pp. 451–456.
8. “The influence of the Coriolis force on flux tubes rising through the solar convection zone”  
A. R. Choudhuri and P. A. Gilman (1987)  
*Astrophysical Journal* **316**, pp. 788–800.
9. “Theoretical modelling of the fine structures in sunspots”  
A. R. Choudhuri (1987)  
In *Theoretical Problems in High Resolution Solar Physics II (NASA CP 2483)* (eds.: G. Athay and D. S. Spicer), pp. 105–106.
10. “On the coalescence of twisted flux tubes”  
A. R. Choudhuri (1988)  
*Geophysical and Astrophysical Fluid Dynamics* **40**, pp. 261–291.
11. “The possible role of meridional flows in suppressing magnetic buoyancy”  
A. A. van Ballegoijen and A. R. Choudhuri (1988)  
*Astrophysical Journal* **333**, pp. 965–977.
12. “The evolution of loop structures in flux rings within the solar convection zone”  
A. R. Choudhuri (1989)  
*Solar Physics* **123**, pp. 217–239.
13. “Locating the seat of the solar dynamo”  
A. R. Choudhuri (1990)  
In *Basic Plasma Processes on the Sun (IAU Symposium 142)* (eds.: E. R. Priest and V. Krishan), pp. 51–55.
14. “Effect of turbulence on emerging flux tubes in the convection zone”  
S. D’Silva and A. R. Choudhuri (1990)  
In *Basic Plasma Processes on the Sun (IAU Symposium 142)* (eds.: E. R. Priest and V. Krishan), pp. 60–61.
15. “On the possibility of an  $\alpha^2\omega$ -type dynamo in a thin layer inside the Sun”  
A. R. Choudhuri (1990)  
*Astrophysical Journal* **355**, pp. 733–744.
16. “A correction to Spruit’s equation for the dynamics of thin flux tubes”  
A. R. Choudhuri (1990)  
*Astronomy and Astrophysics* **239**, pp. 335–339.
17. “Influence of turbulence on rising flux tubes in solar convection zone”  
A. R. Choudhuri and S. D’Silva (1990)  
*Astronomy and Astrophysics* **239**, pp. 326–334.
18. “The effect of Kelvin–Helmholtz instability on rising flux tubes in the convection zone”  
S. D’Silva and A. R. Choudhuri (1991)  
*Solar Physics* **136**, pp. 201–219.

19. “Stochastic fluctuations of the solar dynamo”  
A. R. Choudhuri (1992)  
*Astronomy and Astrophysics* **253**, pp. 277–285.
20. “The cluster model of sunspots”  
A. R. Choudhuri (1992)  
In *Sunspots: Theory and Observations* (eds.: J. H. Thomas and N. O. Weiss) (Dordrecht: Kluwer), pp. 243–257.
21. “Implications of rapid footpoint motions of photospheric flux tubes for coronal heating”  
A. R. Choudhuri, H. Auffret and E. R. Priest (1993)  
*Solar Physics* **143**, pp. 49–68.
22. “A theoretical model for the tilts of bipolar magnetic regions”  
S. D’Silva and A. R. Choudhuri (1993)  
*Astronomy and Astrophysics* **272**, pp. 621–633.
23. “Energy transport to the solar corona by magnetic kink waves”  
A. R. Choudhuri, M. Dikpati and D. Banerjee (1993)  
*Astrophysical Journal* **413**, pp. 811–825.
24. “The evolution of the Sun’s poloidal field”  
M. Dikpati and A. R. Choudhuri (1994)  
*Astronomy and Astrophysics* **291**, pp. 975–989.
25. “Magnetohydrodynamic modelling of some aspects of the solar cycle”  
A. R. Choudhuri (1995)  
*Journal of Indian Institute of Science* **75** (Special Issue on Fluid Mechanics. Guest Editor: R. Narasimha), pp. 559–575.
26. “On the large-scale diffuse magnetic field of the Sun”  
M. Dikpati and A. R. Choudhuri (1995)  
*Solar Physics* **161**, pp. 9–27.
27. “The solar dynamo with meridional circulation”  
A. R. Choudhuri, M. Schüssler and M. Dikpati (1995)  
*Astronomy and Astrophysics Letters* **303**, pp. L29–L32.  
[“Erratum” in *Astronomy and Astrophysics* **319**, p. 362.]
28. “Magnetic fields in the Sun’s interior: What do we know about them?”  
A. R. Choudhuri (1996)  
*Bulletin of the Astronomical Society of India* **24** (Proceedings of the International Conference on ‘Windows on the Sun’s Interior’), pp. 219–222.
29. “The evolution of the magnetic structure of the solar corona with the solar cycle”  
M. Dikpati, A. R. Choudhuri and P. Venkatakrishnan (1996)  
*ASP Conference Series* **95P** (‘Solar Drivers of Interplanetary and Terrestrial Disturbances’), pp. 309–314.

30. “On the out of phase appearance of large-scale diffuse magnetic field of the Sun with respect to sunspots”  
M. Dikpati and A. R. Choudhuri (1996)  
*Astrophysics and Space Science* **243**, pp. 169–172.
31. “The crisis of science” (Translation of a Bengali article by S. N. Bose)  
A. R. Choudhuri (1996)  
*Resonance* **1**, Vol. 2 (February), pp. 92-101.
32. “Annual Review of Astronomy and Astrophysics 1996: A book review”  
A. R. Choudhuri (1998)  
*Current Science* **74**, p. 478.
33. “On the large-scale diffuse magnetic field of the Sun. II. The contribution of active regions”  
A. R. Choudhuri and M. Dikpati (1999)  
*Solar Physics* **184**, pp. 61–76.
34. “The solar dynamo”  
A. R. Choudhuri (1999)  
*Current Science* (Special Issue on Solar Physics. Guest Editor: B. N. Dwivedi), **77**, pp. 1475–1486.
35. “The current status of kinematic solar dynamo models”  
A. R. Choudhuri (2000)  
*Journal of Astrophysics and Astronomy* (Proceedings of IAU Colloquium 179), **21**, pp. 373–377.
36. “The role of magnetic buoyancy in a Babcock-Leighton type solar dynamo”  
D. Nandy and A. R. Choudhuri (2000)  
*Journal of Astrophysics and Astronomy* (Proceedings of IAU Colloquium 179), **21**, pp. 381–385.
37. “Towards a mean field formulation of the Babcock-Leighton type solar dynamo. I.  $\alpha$ -coefficient versus Durney’s double ring approach”  
D. Nandy and A. R. Choudhuri (2001)  
*Astrophysical Journal* **551**, pp. 576–585.
38. “The orientational relaxation of bipolar active regions”  
D. Longcope and A. R. Choudhuri (2002)  
*Solar Physics* **205**, pp. 63–92.
39. “Annual Review of Astronomy and Astrophysics 2001: A book review”  
A. R. Choudhuri (2002)  
*Current Science* **83**, p. 899.
40. “Diamagnetic screening of the magnetic field in accreting neutron stars”  
A. R. Choudhuri and S. Konar (2002)  
*Monthly Notices of Royal Astronomical Society* **332**, pp. 933–944.

41. “Explaining the latitudinal distribution of sunspots with deep meridional flow”  
D. Nandy and A. R. Choudhuri (2002)  
*Science* **296**, pp. 1671–1673.
42. “The solar dynamo as a model of the solar cycle”  
A. R. Choudhuri (2003)  
Chapter 6 of the book *The Dynamic Sun* (ed: B. N. Dwivedi) (Cambridge University Press), pp. 103–127.
43. “Solar dynamo models with realistic internal rotation”  
A. R. Choudhuri and D. Nandy (2003)  
In *SOLMAG 2002: Proceedings of the Magnetic Coupling of the Solar Atmosphere (IAU Colloquium 182)*, pp. 91–94.
44. “On the relation between mean field dynamo theory and flux tubes”  
A. R. Choudhuri (2003)  
*Solar Physics* **215**, pp. 31–55.
45. “Insights on turbulent flows in the solar interior from the behaviour of dynamo generated magnetic fields”  
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In *Proceedings of NATO Workshop on Turbulence (Publications of the Astronomy Department of Eötvös University 13)*, pp. 21–26.
46. “Why do millisecond pulsars have weaker magnetic fields compared to ordinary pulsars?”  
A. R. Choudhuri and S. Konar (2004)  
*Current Science* **86**, pp. 444–446.
47. “Diamagnetic screening of the magnetic field in accreting neutron stars. II The effect of time-dependent velocity field”  
S. Konar and A. R. Choudhuri (2004)  
*Monthly Notices of Royal Astronomical Society* **348**, pp. 661–668.
48. “Full-sphere simulations of a circulation-dominated solar dynamo: Exploring the parity issue”  
P. Chatterjee, D. Nandy and A. R. Choudhuri (2004)  
*Astronomy and Astrophysics* **427**, pp. 1019–1030.
49. “Helicity of solar active regions from a dynamo model”  
A. R. Choudhuri, P. Chatterjee and D. Nandy (2004)  
*Astrophysical Journal Letters* **615**, pp. L57–L60.
50. “The origin of helicity in solar active regions”  
A. R. Choudhuri, P. Chatterjee and D. Nandy (2005)  
In *Multi-Wavelength Investigations of Solar Activity (IAU Symposium 223)* (eds.: A. V. Stepanov, E. E. Benevolenskaya and A. G. Kosovichev), pp. 45–48.
51. “Reply to the comments of Dikpati et al.”  
A. R. Choudhuri, D. Nandy and P. Chatterjee (2005)  
*Astronomy and Astrophysics*, **437** pp. 703–704.

52. “The user’s guide to the solar dynamo code *Surya*”  
A. R. Choudhuri (2005)  
Available upon request.
53. “Development of twist in an emerging magnetic flux tube by poloidal field accretion”  
P. Chatterjee, A. R. Choudhuri and K. Petrovay (2006)  
*Astronomy and Astrophysics*, **449** pp. 781–789.
54. “Some recent developments in solar dynamo theory”  
A. R. Choudhuri (2006)  
*Journal of Astrophysics and Astronomy* **27**, pp. 79–85.
55. “The magnetic coupling between the two hemispheres of the Sun”  
P. Chatterjee and A. R. Choudhuri (2006)  
*Solar Physics* **239**, pp. 29–39.
56. “An elementary introduction to solar dynamo theory”  
A. R. Choudhuri (2007)  
In *Kodai School on Solar Physics (AIP Conference Proceedings 919)* (eds.: S. S. Hasan and D. Benerjee), pp. 49–73.
57. “Predicting solar cycle 24 with a solar dynamo model”  
A. R. Choudhuri, P. Chatterjee and J. Jiang (2007)  
*Physical Review Letters* **98**, 131103.
58. “A new explanation for the origin of trans-equatorial loops based on a dynamo model”  
J. Jiang, A. R. Choudhuri and J. Wang (2007)  
*Solar Physics* **245**, pp. 19–25.
59. “Solar activity forecast with a dynamo model”  
J. Jiang, P. Chatterjee and A. R. Choudhuri (2007)  
*Monthly Notices of Royal Astronomical Society* **381**, pp. 1527–1542.
60. “How far are we from a Standard Model of the solar dynamo?”  
A. R. Choudhuri (2008)  
*Advances in Space Research* (in press).
61. “A theoretical model for the magnetic helicity of solar active regions”  
P. Chatterjee, A. R. Choudhuri, K. Petrovay and D. Nandy (2008)  
*Advances in Space Research* (in press).