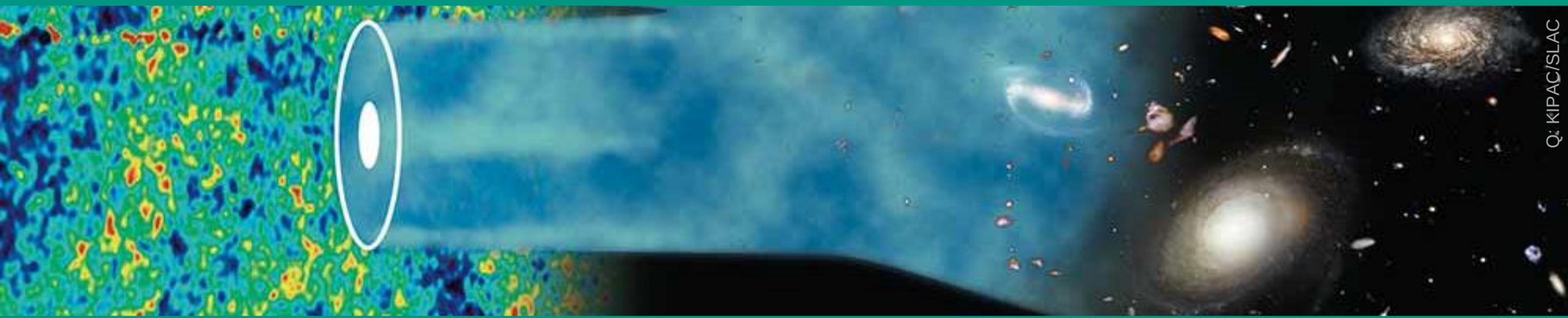


Introduction to Cosmology

Winter term 23/24

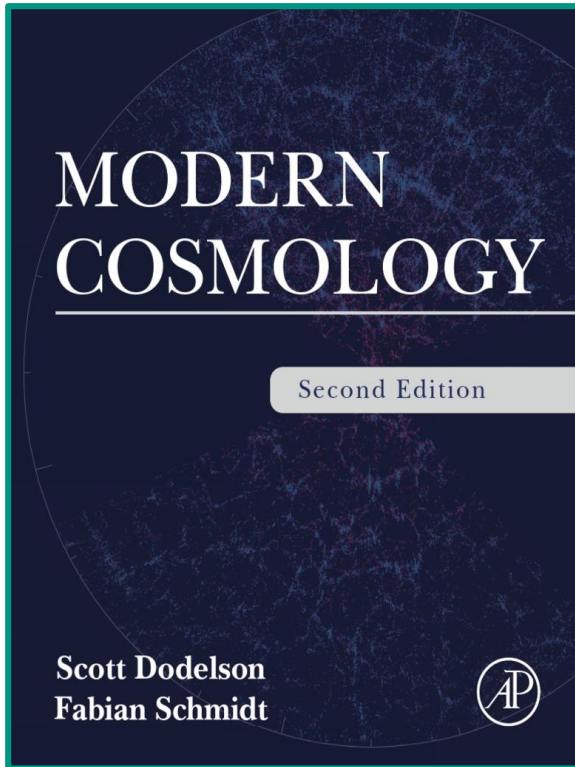
Literature

Oct. 24, 2023

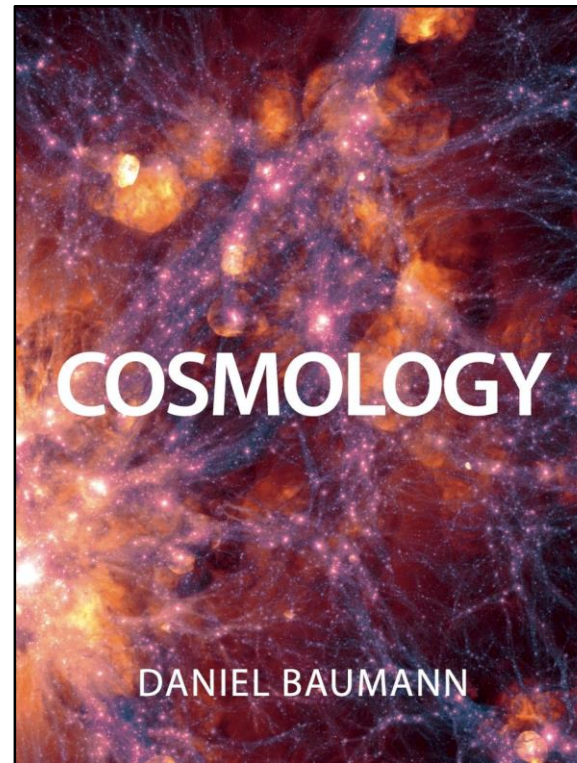


Q: KIPAC/SLAC

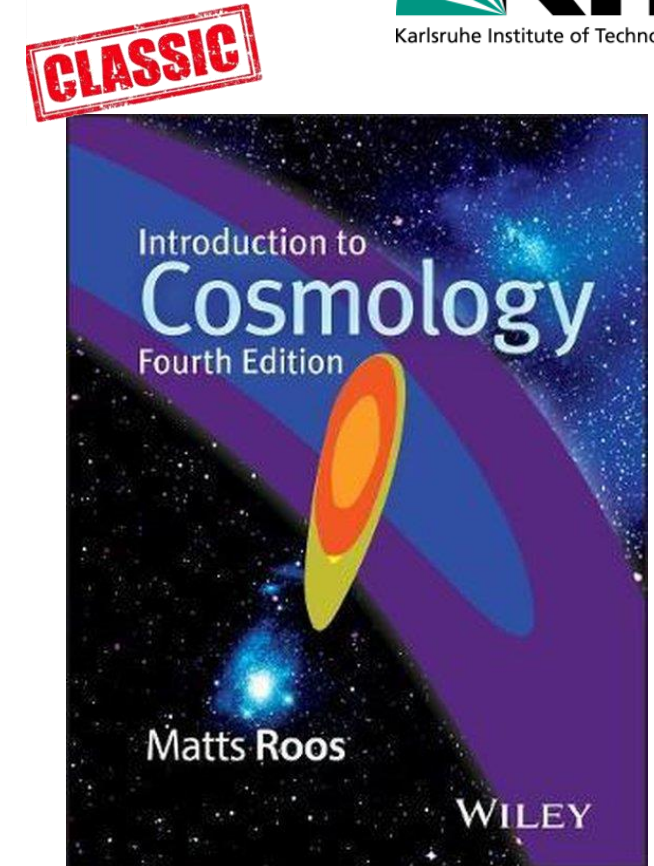
Cosmology – recommended books (in *GB*)



S. Dodelson & F. Schmidt
Modern Cosmology
Academic Press, **2021**

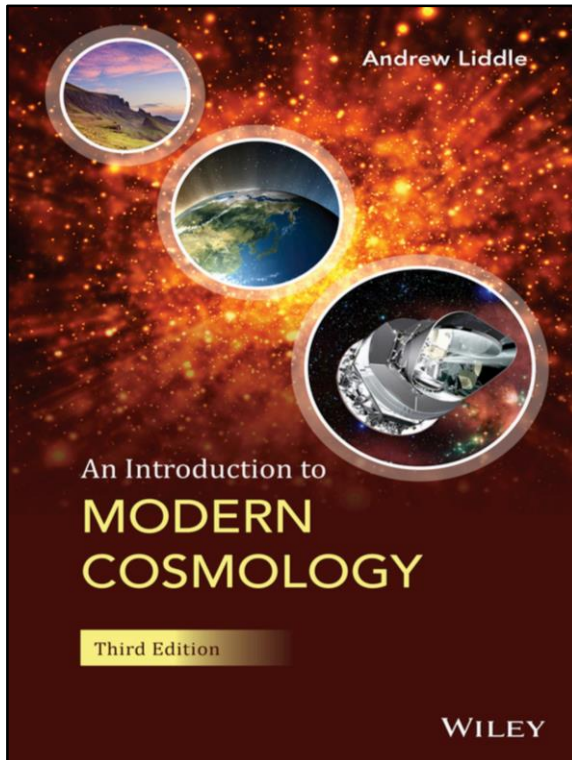


Daniel Baumann
Cosmology (new ed.)
Cambridge, **2022**



Matts Roos
Introduction to Cosmology
Wiley, **2015**

Cosmology – recommended books (in *GB / D*)



Andrew Liddle
Modern Cosmology
Wiley, 2015



J.M. Gaßner / J. Müller
Kosmologie
S. Fischer, 10/2022



A. W. A. Pauldrach
Das Dunkle Universum
Spektrum, 12/2022

Cosmology – recommended books (in D)



M. Bartelmann

RECOMMENDED

Das kosmologische SM

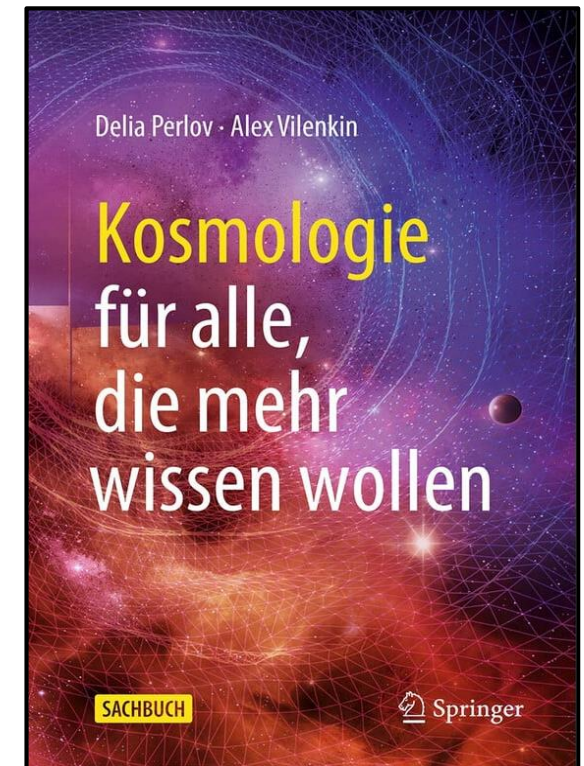
Springer Spektrum, 2019



U. Ellwanger

Vom Universum zu El.-Teilchen

Springer Spektrum, 2019



D. Perlov, A. Vilenkin

Kosmologie für alle, die mehr wissen wollen | SpringerLink, 2021

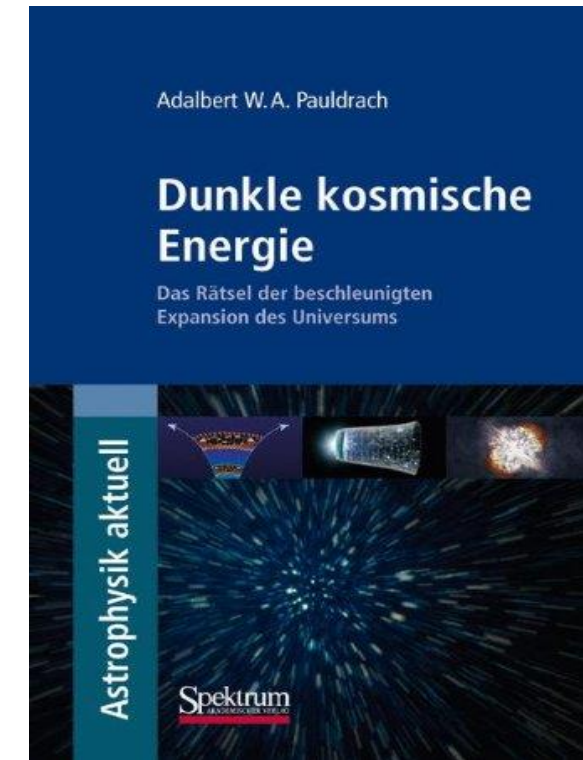
Cosmology – ‘popular science’ Spektrum (*D*)



H. Hetznecker
Kosm. Strukturbildung
Spektrum, 2009

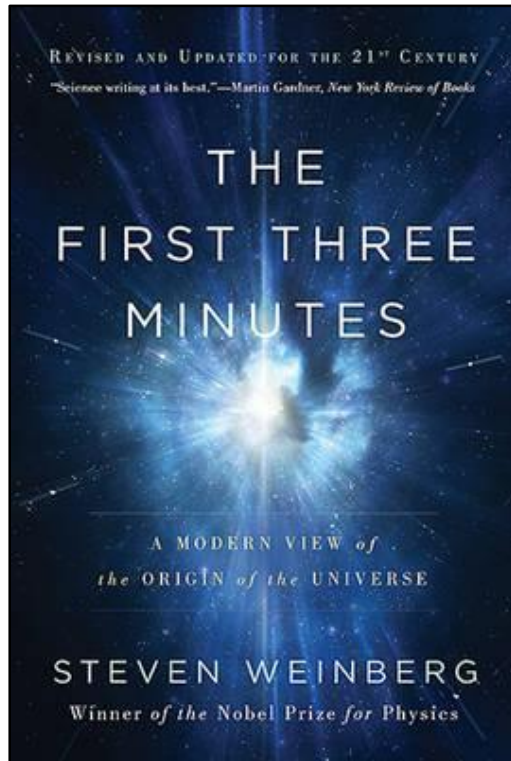


H. Hetznecker
Expansion des Universums
Spektrum, 2009



A. W. A. Pauldrach
Dunkle kosmische Energie
Spektrum, 2009

Further infos – ‘THE introduction’ to cosmology



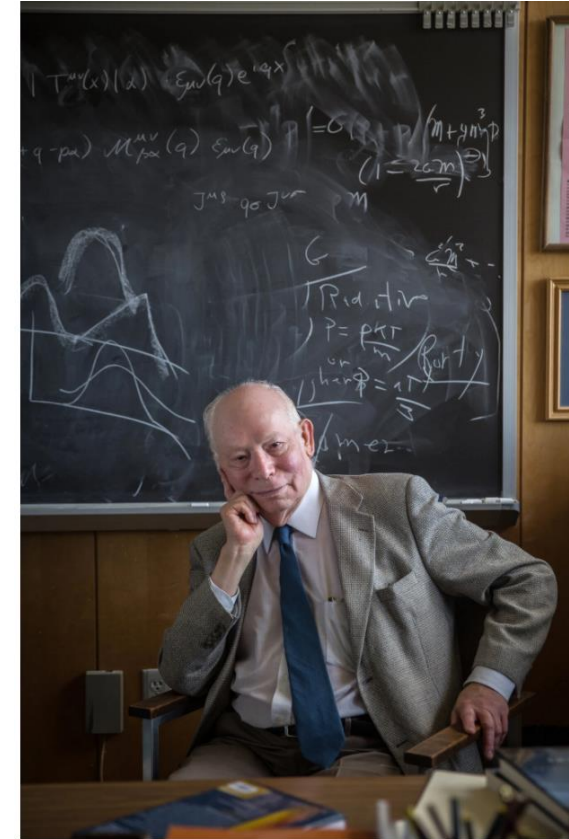
Steven Weinberg
The first three minutes
Basic Books, 2020

The New York Times

*Steven Weinberg, Groundbreaking
Nobelist in Physics, Dies at 88*

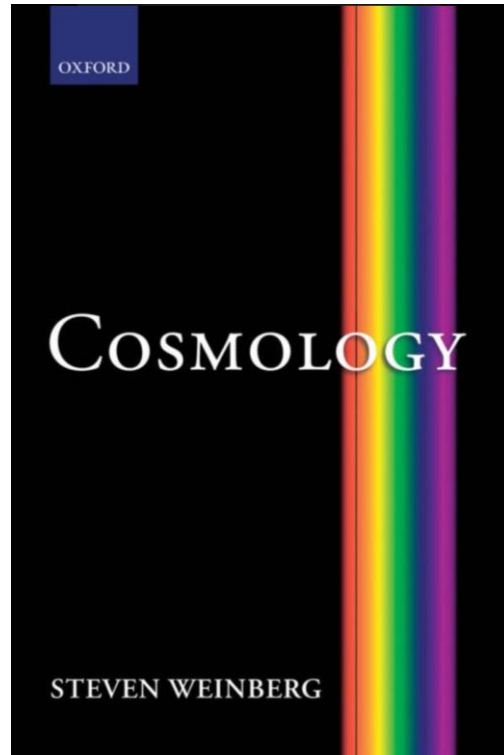
His discoveries deepened understanding of the basic forces at play in the universe, and he took general readers back to its dawn in his book “The First Three Minutes.”

RECOMMENDED

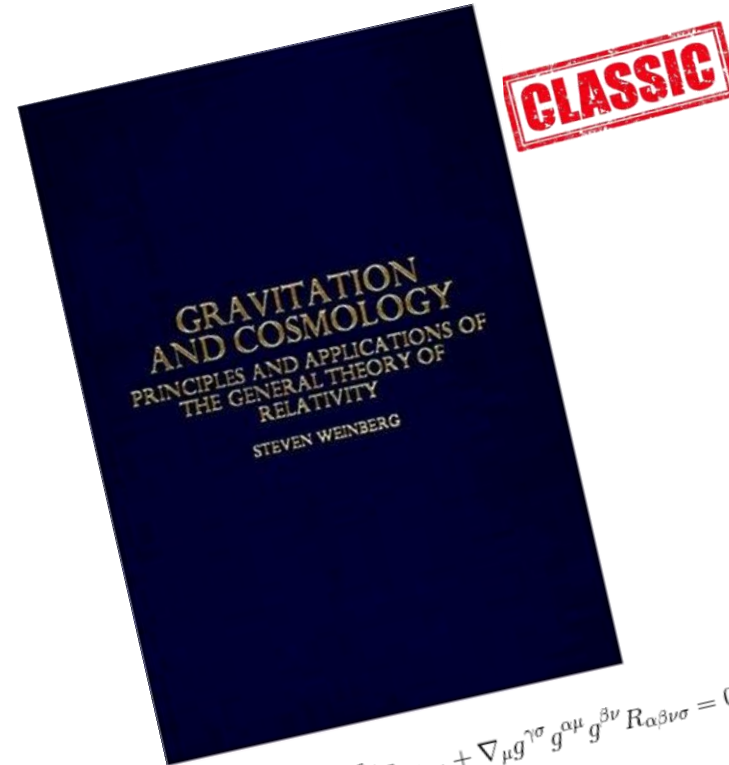


Dr. Steven Weinberg at the University of Texas at Austin. Though he had the respect, almost awe, of his colleagues for his scientific abilities, he also possessed a rare ability among scientists to communicate and explain abstruse scientific ideas to the public. Tamir Kalifa for The New York Times

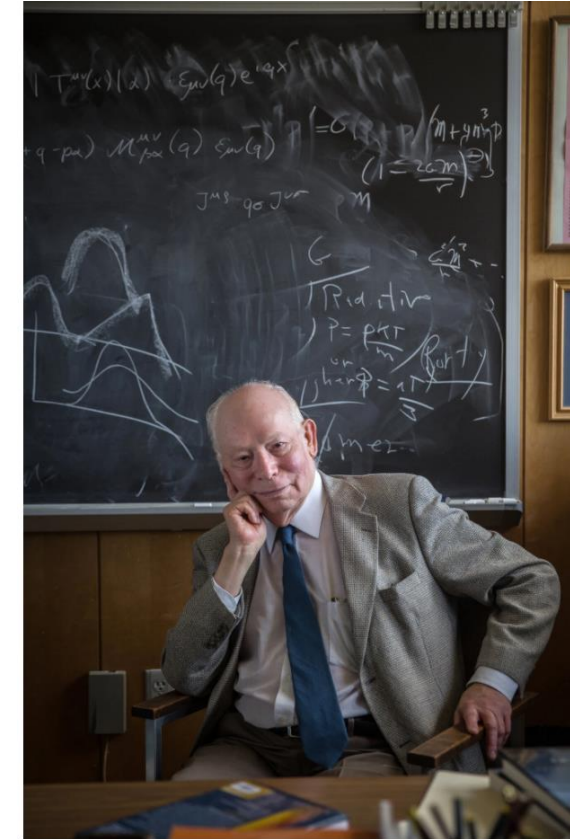
Theory bible – ‘THE introduction’ to cosmology



Steven Weinberg
Cosmology
Oxford, 2008



$$\begin{aligned} \nabla_\sigma g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\alpha\beta\mu\nu} + \nabla_\nu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\alpha\beta\sigma\mu} + \nabla_\mu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\alpha\beta\nu\sigma} &= 0 \\ \nabla_\sigma g^{\gamma\sigma} R + \nabla_\nu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\alpha\beta\sigma\mu} + \nabla_\mu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\alpha\beta\nu\sigma} &= 0 \\ \nabla_\sigma g^{\gamma\sigma} R + \nabla_\nu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\sigma\mu\alpha\beta} + \nabla_\mu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\nu\sigma\alpha\beta} &= 0 \\ \nabla_\sigma g^{\gamma\sigma} R - \nabla_\nu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\mu\sigma\alpha\beta} - \nabla_\mu g^{\gamma\sigma} g^{\alpha\mu} g^{\beta\nu} R_{\nu\sigma\beta\alpha} &= 0 \end{aligned}$$

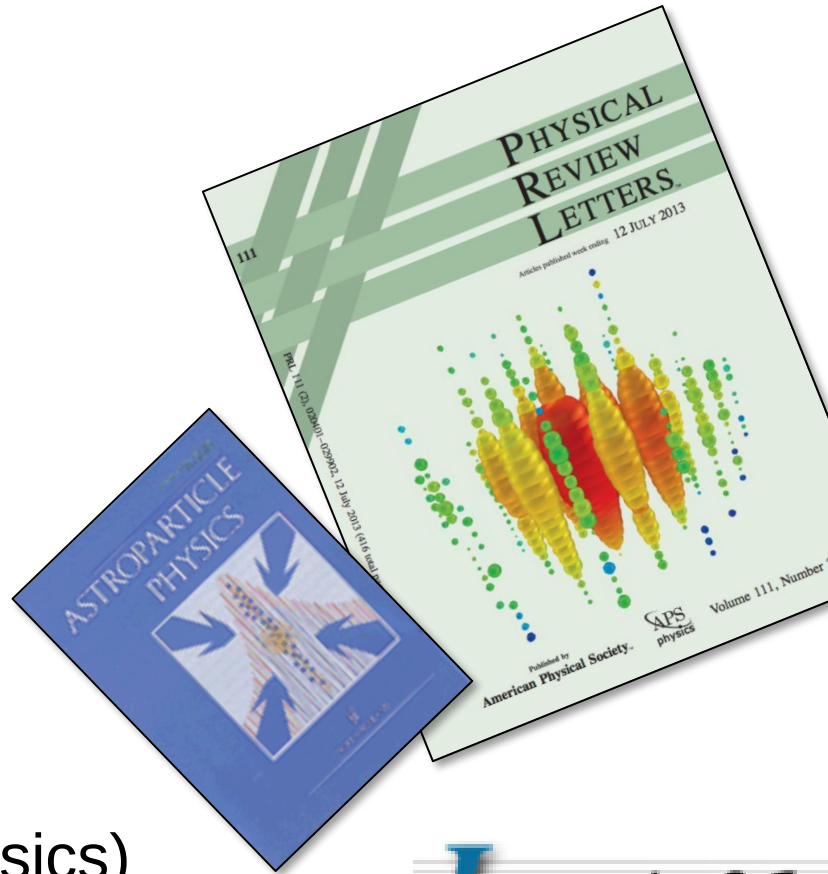


...for the theorist in us all...

Cosmology – further information: journals

arXiv

arXiv.org



astro – *ph* (astrophysics)
hep – *ex*, *nucl* – *ex* (experiment)
hep – *ph* (phenomenology)

Journal of Cosmology and Astroparticle Physics
an IOP and SISSA journal