References for AxionLimits webpage

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1 Axion-photon

Haloscopes

- ABRACADABRA [1, 2]
- ADMX [3, 4, 5, 6]
- ADMX-Sidecar [7, 8]
- ADMX-SLIC [9]
- CAPP [10, 11, 12]
- BASE [13]
- GrAHal [14]
- HAYSTAC [15, 16]
- ORGAN [17]
- QUAX [18, 19]
- RADES [20]
- RBF [21]
- SHAFT [22]
- UF [23]
- UPLOAD-DOWNLOAD [24]
- ABRACADABRA (projection) [25]
- ADBC (projection) [26]
- ADMX (projection) [27]
- aLIGO (projection) [28]
- ALPHA (projection) [29]
- BRASS (projection) [30]
- BREAD (projection) [31]
- DM-Radio (projection) [32]
- DANCE (projection) [33]
- LAMPOST (projection) [34]
- MADMAX (projection) [35]
- KLASH (projection) [36]
- ORGAN (projection) [17]
- TOORAD (projection) [37]
- WISPLC (projection) [38]

LSW/Helioscopes

- ALPS [39]
- CAST [40, 41]
- CROWS [42]
- OSQAR [43]
- PVLAS [44]
- SAPPHIRES [45]
- ALPS-II (projection) [46]
- IAXO (projection) [47]
- IAXO (Galactic SN) [48]

Astro

- Betelgeuse [49]
- Breakthrough Listen (Doppler shifted radio line in MW) [50]
- Bullet Cluster (archival radio data) [51]
- Chandra (Hydra) [52]
- Chandra (M87) [53]
- Chandra (NG7 1275) [54]
- Chandra (H1821+643) [55]
- Chandra (Magnetic white dwarfs) [55]
- COBE/FIRAS+Planck spectral dist. [56]
- Diffuse SN ALPs [57] (see also [58])
- Distance ladder [59]
- Fermi-LAT (NGC 1275) [60]
- Fermi-LAT (Extragalactic SNe) [61]
- HESS (PKS 2155-304) [62]
- Horizontal branch [63]
- Leo T gas temperature [64]
- Mrk 421 (ARGO-YBJ+Fermi): [65]
- Neutron Stars (Foster et al.) [66]
- Neutron Stars (Darling) [67]
- Neutron Stars (Battye et al.) [68]
- Solar neutrinos [69]
- SN1987A-γ [70]
- SN1987A-γ (low mass ALPs) [71]
- SN1987A-γ,ν (high mass ALPs) [72]
- Star clusters [73]
- Telescopes (Haystack) [74]
- Telescopes (MUSE) [75]
- Telescopes (VIMOS) [76]
- Fermi galactic SN (projection) [77]
- THESEUS (projection) [78]
- eROSITA (projection) [79]
- White dwarf initial-final mass relation [80]
- XMM-Newton (decaying DM ALPs) [81]

Cosmology

- Ionisation fraction, EBL, X-rays [82]
- BBN+$N_{\rm eff}$ [83]

2 Axion-electron

- EDELWEISS [84]
- Magnon non-demolition [85]
- GERDA [86]
- LUX [87]
- Panda-X [88]
- SuperCDMS [89]
- XENON1T [90, 91]
- XENON1T (Solar basin) [92]
- Red giants (ωCen) [93]
- Solar neutrinos [94]
- Magnons (projection) [95]
- Polaritons (projection) [96]
- DARWIN (projection) [97]
- LZ (projection) [98]
- QUAX [99, 100]
- Semiconductors (projection) [101]
- White dwarf hint [102]

3 Axion-nucleon

Note: CASPEr and nEDM limits account for stochastic correction reported in [103]

- CASPEr-ZULF-Comagnetometer [104]
- CASPEr-ZULF-Sidechain [105]
- nEDM (ultracold neutrons and mercury) [106]
- NASDUCK [107]
- K-3He comagnetometer [108]
- Old comagnetometers [109]
- Torsion balance [110]
- Hot Neutron Star (HESS J1731-347) [111]
- SN1987A Cooling [112]
- SNO (deuterium dissasociation) [113]
- Proton storage ring (projection) [114]
- DM comagnetometer (projection) [109]
- CASPEr-wind (projection) [105]

4 Axion-EDM

- CASPEr-electric [115]
- nEDM [106]
- SN1987A [116]
- CASPEr-electric (projection) [117]
- Storage Ring EDM (projection) [117]

5 Axion mass versus f_a

- BBN [118]
- Binary pulsars and Solar core constraint on $\bar{\theta}$ [119]. I include minor numerical corrections made by [120, 121].
- GW170817 [122]
- nEDM [106]
- SN1987A [123]
- Neutron stars (projection) [119].
- NS-NS and NS-BH Inspirals (projection) [119].

6 Axion theory predictions

6.1 Post-inflation QCD axion

- Ballesteros et al. [124]
- Buschmann et al. 2020 [125]
- Buschmann et al. 2021 [126]
- Bonati et al. [127]
- Borsanyi et al. [128]
- Berkowitz et al. [129]
- Dine et al. [130]
- Petreczky et al. [131]
- Fleury & Moore [132]
- Klaer & Moore [133]

6.2 Other dark matter predictions

- ALP Cogenesis [134]
- Early matter domination [135]
- Post-inflation ALP misalignment [136]
- Trapped misalignment ($\mathcal{Z}_N$ axion) [120]

7 CP-violating couplings

Combined constraints [137]

Scalar-nucleon

- Red giants [138]
- MICROSCOPE [139].
- Eot-Wash [140, 141, 142]
- Irvine [143]. Corrected to 2σ limit by [144]
- HUST [145, 146, 147, 148].
- Stanford [149]
- IUPUI [150].
- Wuhan [144]

Pseudoscalar-electron

- Red giants [138]
- Eot-wash [151]
- NIST [152]
- SMILE [153].
- QUAX [154, 155]
- Washington [156, 157].
- XENON1T [158]
- Magnon (projection) [96]
- QUAX (projection) [154].

Pseudoscalar-nucleon

- Neutron star cooling [111]
- Washington [159]. Limit taken from [160].
- SMILE [153].
- Mainz [161]
- ARIADNE (projection) [162]
- CASPEr-wind (projection) [117]
- DM comagnetometer (projection) [109]

8 Black hole superradiance

- Baryakhtar et al. [163] (just Stellar mass BHs)
- Mehta et al. [163] (Stellar mass and SMBHs)
- Stott [164]
- Cardoso et al. [165] (dark photon)

9 Dark photons

Combined constraints [166]

SM photon-DP transitions

- Coulomb [167, 168, 169, 170, 171],
- Plimpton & Lawton's experiment [172, 171]
- Atomic spectroscopy [173]
- Atomic force microscopy (AFM) [171]
- Static magnetic field of the Earth [174, 175]
- Static magnetic field of Jupiter [176, 175].
- ALPs [39]
- SPring-8 [177]
- UWA-LSW [178, 179]
- ADMX-LSW [180]
- CROWS [42].
- TEXONO [181]
- Crab nebula [182]
- COBE and FIRAS [183]

Production in stars

- CAST [184]
- SHIP [185]
- HB and RG stars [186]
- Neutron stars [187]
- Solar neutrinos [188]

Dark matter cosmology/astro

- Arias et al. [136]
- Witte et al. [189, 190]
- Caputo et al. [191, 183],
- IGM [192],
- Leo T dwarf [193]
- Gas clouds [194]

Dark matter experiments

- Reinterpreted axion limits [166]
- BREAD (projection) [31]
- DAMIC [195]
- Dark E-field Radio [196]
- DM Pathfinder [197]
- FUNK [198]
- LAMPOST [199]
- MuDHI [200]
- SENSEI [201]
- SHUKET [202]
- SuperCDMS [203]
- SuperMAG [204, 205]
- SQuAD [206],
- Tokyo dish antennae experiments [207, 208, 209]
- WISPDMX [210]
- XENON1T/XENON100 [101, 158, 211, 212].

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