

# References for AxionLimits webpage

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## 1 Axion-photon

### Haloscopes

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

### LSW/Helioscopes

- ALPS [33]
- CAST [34, 35]
- CROWS [36]
- OSQAR [37]
- PVLAS [38]
- ALPS-II (projection) [39]
- IAXO (projection) [40]
- IAXO (Galactic SN) [41]

### Astro

- Chandra (Hydra) [42]
- Chandra (M87) [43]
- Chandra (NG7 1275) [44]
- Diffuse SN ALPs [45]
- Distance ladder [46]
- Fermi-LAT (NGC 1275) [47]
- Fermi-LAT (Extragalactic SNe) [48]
- HESS (PKS 2155-304) [49]
- Horizontal branch [50]
- Mrk 421 (ARGO-YB]+Fermi): [51]
- Neutron Stars (Foster et al.) [52]
- Neutron Stars (Darling) [53]
- Neutron Stars (Battye et al.) [54]
- Solar neutrinos [55]
- SN1987A (decay) [56]
- SN1987A (gamma) [57]
- Star clusters [58]
- Telescopes (MUSE) [59]
- Telescopes (VIMOS) [60]
- Fermi galactic SN (projection) [61]
- THESEUS (projection) [62]
- eROSITA (projection) [63]

### Cosmology

- Ionisation fraction, EBL, X-rays [64]
- BBN+ $N_{\text{eff}}$  [65]

## 2 Axion-electron

- EDELWEISS [66]
- Magnon non-demolition [67]
- LUX [68]
- Panda-X [69]
- SuperCDMS [70]
- XENON1T [71, 72]
- XENON1T (Solar basin) [73]
- Red giants ( $\omega$ Cen) [74]
- Solar neutrinos [75]
- Magnons (projection) [76]
- Polaritons (projection) [77]
- DARWIN (projection) [78]
- LZ (projection) [79]
- Semiconductors (projection) [80]
- White dwarf hint [81]

## 3 Axion-nucleon

Note: CASPER and nEDM limits account for stochastic correction reported in [82]

- CASPER-ZULF-Comagnetometer [83]
- CASPER-ZULF-Sidechain [84]
- nEDM (ultracold neutrons and mercury) [85]
- NASDUCK [86]
- K-3He comagnetometer [87]
- Old comagnetometers [88]
- Torsion balance [89]
- Hot Neutron Star (HESS J1731-347) [90]
- SN1987A Cooling [91]
- SNO (deuterium dissasociation) [92]
- Proton storage ring (projection) [93]
- DM comagnetometer (projection) [88]
- CASPER-wind (projection) [84]

## 4 Axion-EDM

- CASPER-electric [94]
- nEDM [85]
- SN1987A [95]
- CASPER-electric (projection) [96]
- Storage Ring EDM (projection) [96]

## 5 Axion mass versus $f_a$

- Binary pulsars and Solar core constraint on  $\bar{\theta}$  [97]. I include minor numerical corrections made by [98, 99].
- nEDM [85]
- SN1987A [100]
- Neutron stars (projection) [97].
- NS-NS and NS-BH Inspirals (projection) [97].

## 6 CP-violating couplings

Combined constraints [101]

### Scalar-nucleon

- Red giants [102]
- MICROSCOPE [103].
- Eot-Wash [104, 105, 106]
- Irvine [107]. Corrected to  $2\sigma$  limit by [108]
- HUST [109, 110, 111, 112].
- Stanford [113]
- IUPUI [114].
- Wuhan [108]

### Pseudoscalar-electron

- Red giants [102]
- Eot-wash [115]
- NIST [116]
- SMILE [117].
- QUAX [118, 119]
- Washington [120, 121].
- XENON1T [122]
- Magnon (projection) [77]
- QUAX (projection) [118].

### Pseudoscalar-nucleon

- Neutron star cooling [90]
- Washington [123]. Limit taken from [124].
- SMILE [117].
- Mainz [125]
- ARIADNE (projection) [126]
- CASPEr-wind (projection) [96]
- DM comagnetometer (projection) [88]

## 7 Black hole superradiance

- Baryakhtar et al. [127] (just Stellar mass BHs)
- Mehta et al. [127] (Stellar mass and SMBHs)
- Stott [128]
- Cardoso et al. [129] (dark photon)

## 8 Dark photons

Combined constraints [130]

### SM photon-DP transitions

- Coulomb [131, 132, 133, 134, 135],
- Plimpton & Lawton's experiment [136, 135]
- Atomic spectroscopy [137]
- Atomic force microscopy (AFM) [135]
- Static magnetic fields of the Earth [138]
- Static magnetic fields of the Jupiter [139].
- ALPs [33]
- SPring-8 [140]
- UWA-LSW [141, 142]
- ADMX-LSW [143]
- CROWS [36].
- TEXONO [144]
- Crab nebula [145]
- COBE and FIRAS [146]

### Production in stars

- CAST [147]
- SHIP [148]
- HB and RG stars [149]
- Neutron stars [150]
- Solar neutrinos [151]

### Dark matter cosmology/astro

- Arias et al. [152]
- Witte et al. [153, 154]
- Caputo et al. [155, 146],
- IGM [156],
- Leo T dwarf [157]
- Gas clouds [158]

### Dark matter experiments

- Reinterpreted axion limits [130]
- DAMIC [159]
- Dark E-field Radio [160]
- DM Pathfinder [161]
- FUNK [162]
- SENSEI [163]
- SHUKET [164]
- SuperCDMS [165]
- SQuAD [166],
- Tokyo dish antennae experiments [167, 168, 169]
- WISPDMS [170]
- XENON1T/XENON100 [80, 122, 171, 172].

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