

# 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]
- DM-Radio (projection) [31]
- DANCE (projection) [32]
- LAMPOST (projection) [33]
- MADMAX (projection) [34]
- KLASH (projection) [35]
- ORGAN (projection) [17]
- TOORAD (projection) [36]

### LSW/Helioscopes

- ALPS [37]
- CAST [38, 39]
- CROWS [40]
- OSQAR [41]
- PVLAS [42]
- SAPPHIRES [43]
- ALPS-II (projection) [44]
- IAXO (projection) [45]
- IAXO (Galactic SN) [46]

### Astro

- Bullet Cluster (archival radio data) [47]
- Chandra (Hydra) [48]
- Chandra (M87) [49]
- Chandra (NG7 1275) [50]
- Chandra (H1821+643) [51]
- Chandra (Magnetic white dwarfs) [51]
- Diffuse SN ALPs [52] (see also [53])
- Distance ladder [54]

- Fermi-LAT (NGC 1275) [55]
- Fermi-LAT (Extragalactic SNe) [56]
- HESS (PKS 2155-304) [57]
- Horizontal branch [58]
- Mrk 421 (ARGO-YBJ+Fermi): [59]
- Neutron Stars (Foster et al.) [60]
- Neutron Stars (Darling) [61]
- Neutron Stars (Battye et al.) [62]
- Solar neutrinos [63]
- SN1987A- $\gamma$  [64]
- SN1987A- $\gamma$  (low mass ALPs) [65]
- SN1987A- $\gamma, \nu$  (high mass ALPs) [66]
- Star clusters [67]
- Telescopes (Haystack) [68]
- Telescopes (MUSE) [69]
- Telescopes (VIMOS) [70]
- Fermi galactic SN (projection) [71]
- THESEUS (projection) [72]
- eROSITA (projection) [73]
- White dwarf initial-final mass relation [74]
- XMM-Newton (decaying DM ALPs) [75]

### Cosmology

- Ionisation fraction, EBL, X-rays [76]
- BBN+ $N_{\text{eff}}$  [77]

## 2 Axion-electron

- EDELWEISS [78]
- Magnon non-demolition [79]
- LUX [80]
- Panda-X [81]
- SuperCDMS [82]
- XENON1T [83, 84]
- XENON1T (Solar basin) [85]
- Red giants ( $\omega$ Cen) [86]
- Solar neutrinos [87]
- Magnons (projection) [88]
- Polaritons (projection) [89]
- DARWIN (projection) [90]
- LZ (projection) [91]
- QUAX [92, 93]
- Semiconductors (projection) [94]
- White dwarf hint [95]

### 3 Axion-nucleon

Note: CASPER and nEDM limits account for stochastic correction reported in [96]

- CASPER-ZULF-Comagnetometer [97]
- CASPER-ZULF-Sidechain [98]
- nEDM (ultracold neutrons and mercury) [99]
- NASDUCK [100]
- K-3He comagnetometer [101]
- Old comagnetometers [102]
- Torsion balance [103]
- Hot Neutron Star (HESS J1731-347) [104]
- SN1987A Cooling [105]
- SNO (deuterium dissasociation) [106]
- Proton storage ring (projection) [107]
- DM comagnetometer (projection) [102]
- CASPER-wind (projection) [98]

### 4 Axion-EDM

- CASPER-electric [108]
- nEDM [99]
- SN1987A [109]
- CASPER-electric (projection) [110]
- Storage Ring EDM (projection) [110]

### 5 Axion mass versus $f_a$

- BBN [111]
- Binary pulsars and Solar core constraint on  $\bar{\theta}$  [112]. I include minor numerical corrections made by [113, 114].
- GW170817 [115]
- nEDM [99]
- SN1987A [116]
- Neutron stars (projection) [112].
- NS-NS and NS-BH Inspirals (projection) [112].

### 6 Axion mass theory predictions

- Ballesteros et al. [117]
- Buschmann et al. 2020 [118]
- Buschmann et al. 2021 [119]
- Bonati et al. [120]
- Borsanyi et al. [121]
- Berkowitz et al. [122]
- Dine et al. [123]
- Petreczky et al. [124]
- Fleury & Moore [125]
- Klaer & Moore [126]

### 7 CP-violating couplings

Combined constraints [127]

#### Scalar-nucleon

- Red giants [128]
- MICROSCOPE [129].
- Eot-Wash [130, 131, 132]
- Irvine [133]. Corrected to  $2\sigma$  limit by [134]
- HUST [135, 136, 137, 138].
- Stanford [139]
- IUPUI [140].
- Wuhan [134]

#### Pseudoscalar-electron

- Red giants [128]
- Eot-wash [141]
- NIST [142]
- SMILE [143].
- QUAX [144, 145]
- Washington [146, 147].
- XENON1T [148]
- Magnon (projection) [89]
- QUAX (projection) [144].

#### Pseudoscalar-nucleon

- Neutron star cooling [104]
- Washington [149]. Limit taken from [150].
- SMILE [143].
- Mainz [151]
- ARIADNE (projection) [152]
- CASPER-wind (projection) [110]
- DM comagnetometer (projection) [102]

### 8 Black hole superradiance

- Baryakhtar et al. [153] (just Stellar mass BHs)
- Mehta et al. [153] (Stellar mass and SMBHs)
- Stott [154]
- Cardoso et al. [155] (dark photon)

## 9 Dark photons

Combined constraints [156]

### SM photon-DP transitions

- Coulomb [157, 158, 159, 160, 161],
- Plimpton & Lawton's experiment [162, 161]
- Atomic spectroscopy [163]
- Atomic force microscopy (AFM) [161]
- Static magnetic field of the Earth [164, 165]
- Static magnetic field of Jupiter [166, 165].
- ALPs [37]
- SPring-8 [167]
- UWA-LSW [168, 169]
- ADMX-LSW [170]
- CROWS [40].
- TEXONO [171]
- Crab nebula [172]
- COBE and FIRAS [173]

### Production in stars

- CAST [174]
- SHIP [175]
- HB and RG stars [176]
- Neutron stars [177]
- Solar neutrinos [178]

### Dark matter cosmology/astro

- Arias et al. [179]
- Witte et al. [180, 181]
- Caputo et al. [182, 173],
- IGM [183],
- Leo T dwarf [184]
- Gas clouds [185]

### Dark matter experiments

- Reinterpreted axion limits [156]
- DAMIC [186]
- Dark E-field Radio [187]
- DM Pathfinder [188]
- FUNK [189]
- LAMPOST [190]
- MuDHI [191]
- SENSEI [192]
- SHUKET [193]
- SuperCDMS [194]
- SuperMAG [195, 196]
- SQuAD [197],
- Tokyo dish antennae experiments [198, 199, 200]
- WISPDMS [201]
- XENON1T/XENON100 [94, 148, 202, 203].

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