Query: dark energy

RAG Answer

Query: dark energy
Summary from retrieved NASA sources:

[1] Testing for Dark Matter Trapped in the Solar System (ID:20060036141)
consider possibility dark matter trapped solar system bound solar orbit exist mechanism dissipating excess kinetic energy amount sufficient generating bound solar orbit trapping galactic dark matter might taken place formation solar system could ongoing process possible location acumulation trapped dark matter orbital resonance planet region outer solar system posible test presence unseen matter detecting gravitational effect current result dynamical limit obtained analysis planetary ephemeris data spacecraft tracking data presented possible future improvement discussed

[2] James Webb Space Telescope Studies of Dark Energy (ID:20100020937)
hubble space telescope hst contributed significantly study dark energy used find first evidence deceleration z=1.8 riess 2001 serendipitous discovery type supernova sn1a hubble deep field discovery deceleration greater confirmation apparent acceleration low redshift riess 1998 perlmutter 1999 due dark energy rather observational astrophysical effect systematic error evolution sn1a population intergalactic dust good project associated follow-up discovered sn1a expanding result riess 2007 hst also used constrain cosmological parameter dark energy weak lensing measurement cosmos survey massey 2007 schrabback 2009 strong gravitational lensing measured time delay suyu 2010 constraint dark energy often parameterized equation state p/p cosmological constant model time model predict change time so

[3] COBE DMR-normalized dark energy cosmogony (ID:20060042563)
likelihood analysis cobe differential microwave radiometer dmr sky map used determine normalization inversepower-law potential scalar-field dark energy model

[4] Dark energy and the cosmic microwave background radiation (ID:20040129921)
find current cosmic microwave background anisotropy data strongly constrain mean spatial curvature universe near zero equivalently total energy density near critical-as predicted inflation result robust editing data set variation cosmological parameter totaling seven including cosmological constant line argument indicate energy density nonrelativistic matter much less critical together result evidence independent supernova data dark energy universe

[5] Gravity Observation and Dark Energy Detection Explorer in the Solar System - NASA Innovative Concepts (NIAC) Phase II Final Report (ID:20250007739)
gravity probe dark energy detection mission gdem mission proposed ambitious multi-science mission gravity dark energy measurement using tetrahedral spacecraft formation sun leveraging atomic drag-free test mass atom interferometer quantum sensor approach laser ranging precise measurement mission focus scalar force gradient tensor trace unaffected standard gravitational force scientifically technologically feasible 3-year mission solar system promise provide significant evidence cubic galileon field possible source dark energy model agnostic test gravity inverse square law general time provides rich set measurement data mid-band gravitational wave detection dark matter detection precise measurement solar gravity detection unknown solar system body

Note: These are verbatim grounded snippets.

Summary of Retrieved Context

hst contributed significantly study dark energy used find first evidence deceleration z=1.8 riess 2001 serendipitous discovery type supernova sn1a hubble deep field discovery deceleration greater confirmation apparent acceleration low redshift riess 1998 perlmutter 1999 due dark energy rather

observational astrophysical effect systematic error evolution sn1a population intergalactic dust good project associated follow-up discovered sn1a expanding result riess 2007 astronomical observatory agnostic test gravity inverse square law general time provides rich set measurement data mid-band gravitational wave detection precise measurement solar gravity detection unknown solar system body

Retrieved Sources

[1] Testing for Dark Matter Trapped in the Solar System (ID: 20060036141)
consider possibility dark matter trapped solar system bound solar orbit exist mechanism dissipating excess kinetic...

[2] James Webb Space Telescope Studies of Dark Energy (ID: 20100020937)
hubble space telescope hst contributed significantly study dark energy used find first evidence deceleration z=1.8...

[3] COBE DMR-normalized dark energy cosmogony (ID: 20060042563)
likelihood analysis cobe differential microwave radiometer dmr sky map used determine normalization inversepower-law...

[4] Dark energy and the cosmic microwave background radiation (ID: 20040129921)
find current cosmic microwave background anisotropy data strongly constrain mean spatial curvature universe near zero...

[5] Gravity Observation and Dark Energy Detection Explorer in the Solar System - NASA Innovative Concepts (NIAC) Phase II Final Report (ID: 20250007739)
gravity probe dark energy detection mission gdem mission proposed ambitious multi-science mission gravity dark energy...