

Interdisciplinary Studies

I have done some studies in various fields besides physics:

- Philosophy
 - [Priorities in a Society](#)
 - [Evolution of Beliefs](#), a sermon delivered at Christ Episcopal Church, Blacksburg VA on 25 February 2001
 - [Links for The Bible According to Einstein](#)
- [L. David Roper letters and editorials in The Roanoke Times](#)
- [Compilation of Blacksburg Cool Cities Messages](#)
- Future
 - [Triple Threats for the Human Future: Will Civilization Arrive?](#) (4 Megabytes)
 - [Triple Threats for the Human Future: Forward, Preface, Contents and Figure Captions](#)
 - [Human Intelligence Evolution](#)
 - [Silicon Intelligence Evolution](#)
 - [Peak Fishing](#)
 - [Peak Agriculture](#)
 - [World Population Projection](#)
 - [Twenty-First Century Collapse](#)
- [Goiânia Radiation Incident](#)
- [Life Expectancy in the United States](#)
- [Politics](#)
 - [U.S. is Becoming a Third-Rate Country](#)
- [Economy](#)
 - [Prices](#)
 - [High Gasoline Price is Good](#)
 - [Financing Highways](#)
 - [Prime-Rate Projection](#)
 - [Stock Market as States' Changes](#)
 - [Income Distribution in the United States](#)
 - [Income Distribution Complex Web](#)
 - [Currency System Based on Energy Consumed](#)
 - [Steady-State Economy](#)
- [Correlation Studies of Academic Excellence and Big-Time Athletics](#), L. David Roper and Keith Snow, International Review of Sport Sociology 3 (11) 1976 pp. 57-69. (940 kbytes)
- [Radioactive Weapons](#)
- [Minerals Depletion](#) (many web pages)
- [World Ammonia Production](#)

- **Energy** (many Web pages)
 - The Solar Future: Why Solar Energy Must Run the World
 - <http://roperld.com/science/SolarPanelsParkingLots.pdf>
 - Home Energy Usage (TED, The Energy Detective)
 - House Energy Renovation
 - Energy Conservation for Renters
 - Peace and Energy
 - Landscape Destruction due to Energy Extraction
 - Energy Investments for Buildings and Communities
 - Coles Hill Uranium Mine Depletion Study
 - World Wind
 - Blacksburg Wind & Solar Power Educational Project
 - Toward U.S. Energy Independence
 - Electricity Production in the United States
 - <https://www.ucsusa.org/resources/barriers-renewable-energy-technologies>
 - https://www.eia.gov/outlooks/aeo/assumptions/pdf/table_8.2.pdf
- http://www.roperld.com/science/minerals/Oil_USGasolinePricesPrediction.htm
- YMCA Solar Greenhouse
- Roper House
 - Roper Photovoltaic System
 - Roper Rheem Hybrid Hot Water Heater
 - Roper House Battery Backup System
 - Roper Light Tube
 - Recommendations for LED light bulbs
 - Composting the Easy Way
 - Rain Barrels
 - Dry Wells
- Environment
 - <http://roperld.com/science/2024EnvironmentalEnergyIssues.pdf>
 - **Global Warming** (many web pages)
 - Global Heat Pollution
 - Global Warming Mathematics
 - <http://roperld.com/science/GlobalWarmingData.pdf>
 - Ocean Currents
 - Graphically Speaking Project about the Environment Explanation about a single graph
 - Curbside Composting
 - Green Businesses in the New River Valley of Virginia
 - Crops Production in the World and the United States
 - Solitary Bees
 - Water
 - Aquifers in the United States
 - Guarani Aquifer in South America
 - Entropy, Complexity and Sustainable Development
 - Some Earth Limits
 - Collapse of AMOC
- Major Ice Ages (many web pages)
- Sunspots Numbers Fit
- Solar Eclipses in Virginia Recorded by Roper PV System
- Weather
 - Evaporation and Precipitation Versus Latitude
 - Precipitation Patterns due to Global Heating
 - Precipitation Rates Versus Latitude and Longitude

- [Extreme Weather](#)
- [Extreme Weather: Tornadoes](#)
- [Droughts in the United States](#)
- **Mathematics**
 - [The Hyperbolic Tangent World](#) (Many examples in nature)
 - [The Verhulst Function](#)
 - [Realistic Functions for Nonlinear Systems](#)
 - [Model for mutual positive feedback for two variables](#)
 - [Using Sigmoid and Double-Sigmoid Functions for Earth-States Transition](#)
 - [Mathematical Analysis of Covid-19 \(coronavirus19\) in USA and other countries](#)
 - [Spherical Bessel Functions](#)
 - [Solar Insolation Computer Codes for Windows](#)
- **Nerve Excitation**
 - [Nerve Excitation](#)
 - [Rationalizing the Hodgkin-Huxley Equations for Nerve Excitation](#)
 - [Theory of Excitable Membranes](#)
- [Genetics Theories of Homosexuality](#)
- [Fuel Cells are not Pollution Free: Where Will the Water Go?](#)
- **[Hybrid and Electric Vehicles](#)**
 - <http://roperld.com/science/AllCarsElectric.pdf>
 - <https://ark-invest.com/articles/analyst-research/finding-signal-in-noisy-auto-data>
 - <http://roperld.com/science/ChargingBEVsFacts.pdf>
 - <http://roperld.com/science/BatteryElectricVehicles2024.pdf>
 - <http://roperld.com/science/SignificanceTeslaSuperchargerBlacksburg.pdf>
 - <http://roperld.com/science/ShouldIDriveAPHEV.pdf>
 - [Musings about Electric Vehicles](#)
 - <http://roperld.com/science/My5BEVs.pdf>
 - [Vehicle Miles Traveled \(VMT\) in the United States](#)
 - [Blacksburg Tesla Supercharger](#)
 - <https://cleantechnica.com/2022/07/27/ucs-study-shows-lifetime-ev-emissions-are-50-lower-than-conventional-vehicles/>
 - <https://www.ucsusa.org/resources/driving-cleaner>
 - [PlugAndCharge](#)
 - [PHEVs; Charging a PHEV](#)
 - [FederalTaxCredits](#)
 - [GBE M20 folding electric-assisted bicycle](#)
 - <http://roperld.com/science/ElectricBicyclesForNRV.pdf>
- [Interstate Railway System for the United States](#)
- [The Cordless Revolution](#)
- [Electromagnetic Spectra of Light Bulbs](#)
- [Homo sapiens Events](#)
- [Green or Natural Burial](#)

- **Health**

- [RET Proto-Oncogene \(Chromosome 10\) and Medullary Thyroid Cancer](#)
- [Spondylolysis and Spondylolisthesis](#)
- [Trochanteric Bursitis](#)
- [Lumbar Decompression \(Laminectomy\)](#)
- <https://www.verywellhealth.com/right-bundle-branch-block-rbbb-1745785>
- [A mathematical analysis of Covid-19 virus pandemic](#)
 - [Virginia state analysis](#)
 - [New York state analysis](#)
- [Talk about SETI](#) (Search for Extra-Terrestrial Intelligence)

L. David Roper, ROPERLD@VT.EDU <http://roperld.com/personal/RoperLDavid.htm>

<http://roperld.com/science/RoperResonance60thAnniversary.pdf>