

Publications of Kirk T. McDonald

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1489. *Ph501 Lecture 18: Special Relativity; The 4-Potential of a Moving Charge*,
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1490. *Ph501 Lecture 19: Other Force Fields; Significance of Gauge Invariance; Fields of a Moving Charge*,
physics.princeton.edu/~mcdonald/examples/ph501ph501lecture19.pdf
1491. *Ph501 Lecture 20: Relativistic Radiation Effects: Bremsstrahlung, Synchrotron Radiation*,
physics.princeton.edu/~mcdonald/examples/ph501/ph501lecture20.pdf
1492. *Ph501 Lecture 21: Relativistic Radiation Effects: Čerenkov Radiation, Transition Radiation*,
physics.princeton.edu/~mcdonald/examples/ph501/ph501lecture21.pdf
1493. *Ph501 Lecture 22: Electromagnetic Mass; Radiation Reaction*,
physics.princeton.edu/~mcdonald/examples/ph501ph501lecture22.pdf
1494. *Ph501 Lecture 23: Interaction of Radiation with Matter – Microscopic View*,
physics.princeton.edu/~mcdonald/examples/ph501/ph501lecture23.pdf
1495. *Ph501 Lecture 24: Mechanics and Electromagnetism*,
physics.princeton.edu/~mcdonald/examples/ph501/ph501lecture24.pdf
1496. *Ph501 Lecture 25: Lasers from a Classical Perspective*,
physics.princeton.edu/~mcdonald/examples/ph501/ph501lecture25.pdf
1497. *Ph501 Lecture 26: Solitons*,
physics.princeton.edu/~mcdonald/examples/ph501/ph501lecture26.pdf
1498. *Ph501 Problem Set 1*,
physics.princeton.edu/~mcdonald/examples/ph501set1.pdf
1499. *Ph501 Problem Set 2*,
physics.princeton.edu/~mcdonald/examples/ph501set2.pdf
1500. *Ph501 Problem Set 3*,
physics.princeton.edu/~mcdonald/examples/ph501set3.pdf
1501. *Ph501 Problem Set 4*,
physics.princeton.edu/~mcdonald/examples/ph501set4.pdf
1502. *Ph501 Problem Set 5*,
physics.princeton.edu/~mcdonald/examples/ph501set5.pdf
1503. *Ph501 Problem Set 6*,
physics.princeton.edu/~mcdonald/examples/ph501set6.pdf

- 1504. *Ph501 Problem Set 7*,
physics.princeton.edu/~mcdonald/examples/ph501set7.pdf
- 1505. *Ph501 Problem Set 8*,
physics.princeton.edu/~mcdonald/examples/ph501set8.pdf
- 1506. *Ph501 Problem Set 9*,
physics.princeton.edu/~mcdonald/examples/ph501set9.pdf
- 1507. *Ph501 Problem Set 10*,
physics.princeton.edu/~mcdonald/examples/ph501set10.pdf
- 1508. *Ph501 Problem Set 11*,
physics.princeton.edu/~mcdonald/examples/ph501set11.pdf
- 1509. *Ph501 Problem Set 12*,
physics.princeton.edu/~mcdonald/examples/ph501set12.pdf
- 1510. *Ph501 Midterm Exam (October 2000)*,
physics.princeton.edu/~mcdonald/examples/ph501midterm_102300.pdf

Physics 529: Elementary Particle Physics

These lectures, written in the 1980's, give a sense of how the Standard Model came to be.

- 1511. *Ph529 Lecture 1: Why High Energy?*
physics.princeton.edu/~mcdonald/examples/ph529/ph52911.pdf
- 1512. *Ph529 Lecture 2: History: The Strong Interaction*
physics.princeton.edu/~mcdonald/examples/ph529/ph52912.pdf
- 1513. *Ph529 Lecture 3: History: Electromagnetic and Weak Interactions*
physics.princeton.edu/~mcdonald/examples/ph529/ph52913.pdf
- 1514. *Ph529 Lecture 4: Detecting Elementary Particles*
physics.princeton.edu/~mcdonald/examples/ph529/ph52914.pdf
- 1515. *Ph529 Lecture 5: The Electromagnetic Structure of Matter*
physics.princeton.edu/~mcdonald/examples/ph529/ph52915.pdf
- 1516. *Ph529 Lecture 6: Elastic Scatterin fo Electrons and Hadrons*
physics.princeton.edu/~mcdonald/examples/ph529/ph52916.pdf
- 1517. *Ph529 Lecture 7: Elastic Scatterin fo Electrons and Hadrons, II*
physics.princeton.edu/~mcdonald/examples/ph529/ph52917.pdf
- 1518. *Ph529 Lecture 8: Inetastic Electron Scattering*
physics.princeton.edu/~mcdonald/examples/ph529/ph52918.pdf

1519. *Ph529 Lecture 9: Invariance Principles and Conservation Laws*
physics.princeton.edu/~mcdonald/examples/ph529/ph52919.pdf
1520. *Ph529 Lecture 10: Charge Conjugation, Isospin, etc.*
physics.princeton.edu/~mcdonald/examples/ph529/ph529110.pdf
1521. *Ph529 Lecture 11: 3-Body Decays, Partial-Wave Analysis*
physics.princeton.edu/~mcdonald/examples/ph529/ph529111.pdf
1522. *Ph529 Lecture 12: Phenomenology of the Strong Interaction at High Energies*
physics.princeton.edu/~mcdonald/examples/ph529/ph529112.pdf
1523. *Ph529 Lecture 13: The Quark Model*
physics.princeton.edu/~mcdonald/examples/ph529/ph529113.pdf
1524. *Ph529 Lecture 14: The Quark Model, II*
physics.princeton.edu/~mcdonald/examples/ph529/ph529114.pdf
1525. *Ph529 Lecture 15: Heavy Quark States*
physics.princeton.edu/~mcdonald/examples/ph529/ph529115.pdf
1526. *Ph529 Lecture 16: The Weak Interaction*
physics.princeton.edu/~mcdonald/examples/ph529/ph529116.pdf
1527. *Ph529 Lecture 17: Weak Interactions, II*
physics.princeton.edu/~mcdonald/examples/ph529/ph529117.pdf
1528. *Ph529 Lecture 18: CP Violation*
physics.princeton.edu/~mcdonald/examples/ph529/ph529118.pdf
1529. *Ph529 Lecture 19: Neutrino Interactions*
physics.princeton.edu/~mcdonald/examples/ph529/ph529119.pdf
1530. *Ph529 Lecture 20: The Need for a Better Theory*
physics.princeton.edu/~mcdonald/examples/ph529/ph529120.pdf
1531. *Ph529 Lecture 21: The Glashow-Weinberg-Salam Model*
physics.princeton.edu/~mcdonald/examples/ph529/ph529121.pdf
1532. *Ph529 Lecture 22: Test of the Glashow-Salam-Weinberg Model*
physics.princeton.edu/~mcdonald/examples/ph529/ph529122.pdf
1533. *Ph529 Lecture 23: Quantum Chromodynamics*
physics.princeton.edu/~mcdonald/examples/ph529/ph52923.pdf
1534. *Ph529 Lecture 24: Speculations*
physics.princeton.edu/~mcdonald/examples/ph529/ph529124.pdf

Short Course on Astroparticle Physics (1988)

1535. *Lecture 1. Techniques of Astroparticle Physics*,
physics.princeton.edu/~mcdonald/papers/schladming1.pdf
1536. *Lecture 2. Gamma-Ray Protons and Photons*,
physics.princeton.edu/~mcdonald/papers/schladming2.pdf
1537. *Lecture 3. Solar and Supernova Neutrinos*,
physics.princeton.edu/~mcdonald/papers/schladming3.pdf
1538. *Lecture 4. Detectors for the Rest of the Universe*,
physics.princeton.edu/~mcdonald/papers/schladming4.pdf

Short Courses on Accelerator Physics

1539. *A Short Course on Targetry for a Neutrino Factory and Muon Collider* (June 4, 2003)
physics.princeton.edu/~mcdonald/mumu/target/targettrans38.pdf
1540. *A Short Course on Targetry for Neutrino Superbeams, Neutrino Factories and Muon Colliders* (NuFACT06 Summer Institute, Aug 21, 2006),
physics.princeton.edu/~mcdonald/mumu/target/targettrans53.pdf