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**CAMORRA: a C++ library for recursive computation of particle scattering amplitudes.**

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Summary: We present a new Monte Carlo tool that computes full tree-level matrix elements in high-energy physics. The program accepts user-defined models and has no restrictions on the process multiplicity. To achieve acceptable performance, CAMORRA evaluates the matrix elements in a recursive way by combining off-shell currents. Furthermore, CAMORRA can be used to compute amplitudes involving continuous color and helicity final states.

**MSC:**

- [82-04](#) Software, source code, etc. for problems pertaining to statistical mechanics Cited in 4 Documents
- [82-08](#) Computational methods (statistical mechanics) (MSC2010)
- [82B80](#) Numerical methods in equilibrium statistical mechanics (MSC2010)
- [82B21](#) Continuum models (systems of particles, etc.) arising in equilibrium statistical mechanics

**Keywords:**

[tree-level](#); [helicity amplitudes](#); [recursive method](#); [beyond standard model](#); [Monte Carlo tool](#)

**Software:**

[CAMORRA](#)

**Full Text:** [DOI](#)

**References:**

- [1] Berends, F.A.; Giele, W.T., *Nucl. phys. B*, 306, 759, (1988)
- [2] Caravaglios, F.; Moretti, M., *Phys. lett. B*, 358, 332, (1995)
- [3] Mangano, M.L.; Piccinini, F.; Polosa, A.D.; Moretti, M.; Pittau, R., *Jhep*, 0307, 001, (2003)
- [4] Kanaki, A.; Papadopoulos, C.G., *Comp. phys. comm.*, 132, 306, (2000)
- [5] Gleisberg, T.; Höche, S., *Jhep*, 0812, 039, (2008)
- [6] Boos, E., (2001)
- [7] Maltoni, F.; Paul, K.; Stelzer, T.; Willenbrock, S., *Phys. rev. D*, 67, 14, (2003)
- [8] Wess, J.; Zumino, B., *Phys. lett. B*, 49, 52, (1974)
- [9] Denner, A., *Fortschr. phys.*, 41, 307, (1993)
- [10] Denner, A.; Dittmaier, S.; Roth, M.; Wackerroth, D., *Nucl. phys. B*, 560, 33, (1999)
- [11] Kleiss, R., *Nucl. phys. B*, 241, 61, (1984)
- [12] Kleiss, R.; Stirling, W.J., *Nucl. phys. B*, 262, 235, (1985)
- [13] Kleiss, R.; Malamos, I.; van der Oord, G., *Eur. phys. J. C*, 64, 387, (2009)
- [14] Andreev, V.V., *Phys. rev. D*, 62, 014, (2000)
- [15] Denner, A.; Eck, H.; Hahn, O.; Küblbeck, J., *Phys. lett. B*, 291, 278, (1992)
- [16] Kleiss, R.; van den Oord, G., (2009)
- [17] Papadopoulos, C.G.; Worek, M., *Eur. phys. J. C*, 50, 843, (2007)
- [18] Duhr, C.; Höche, S.; Maltoni, F., *Jhep*, 0608, 062, (2006)
- [19] Vermaseren, J.A.M., (2001)
- [20] Kleiss, R.; Stirling, W.J.; Ellis, S.D., *Comp. phys. comm.*, 40, 359, (1986)
- [21] Parke, S.J.; Taylor, T.R., *Phys. rev. lett.*, 56, 2459, (1986)
- [22] Cachazo, F.; Svrcek, P.; Witten, E., *Jhep*, 0409, 006, (2004)
- [23] Kunszt, Z., *Nucl. phys. B*, 271, 333, (1986)

- [24] van Hameren, A., (2010)
- [25] Skands, P.Z., Jhep, 0407, 036, (2004)
- [26] Allanach, B., Comp. phys. comm., 180, 8, (2009)
- [27] Rosiek, J., Phys. rev. D, 41, 3464, (1990)
- [28] Christensen, N.D.; Duhr, C., Comp. phys. comm., 180, 1614, (2009)
- [29] Semenov, A., Comp. phys. comm., 115, 124, (1998)
- [30] Marsaglia, G.; Zaman, A., Ann. appl. prob., 1, 462, (1991)

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