Erratum: First Search for Dyons with the Full MoEDAL Trapping Detector in 13 TeV *pp* Collisions [Phys. Rev. Lett. 126, 071801 (2021)]

B. Acharya, J. Alexandre, P. Benes, B. Bergmann, J. Bernabéu, A. Bevan, H. Branzas, P. Burian, M. Campbell, S. Cecchini, Y. M. Cho, M. de Montigny, A. De Roeck, J. R. Ellis, M. El Sawy, M. Fairbairn, D. Felea, M. Frank, J. Hays, A. M. Hirt, J. Janecek, M. Kalliokoski, A. Korzenev, D. H. Lacarrère, C. Leroy, G. Levi, A. Lionti, J. Mamuzic, A. Maulik, A. Margiotta, N. Mauri, N. E. Mavromatos, P. Mermod, M. Mieskolainen, L. Millward, V. A. Mitsou, R. Orava, I. Ostrovskiy, P.-P. Ouimet, J. Papavassiliou, B. Parker, L. Patrizii, G. E. Păvălaş, J. L. Pinfold, L. A. Popa, V. Popa, M. Pozzato, S. Pospisil, A. Rajantie, R. Ruiz de Austri, Z. Sahnoun, M. Sakellariadou, A. Santra, S. Sarkar, G. Semenoff, A. Shaa, G. Sirri, K. Sliwa, R. Soluk, M. Spurio, M. Staelens, M. Suk, M. Tenti, V. Togo, J. A. Tuszyński, A. Upreti, V. Vento, O. Vives, and A. Wall

(MoEDAL Collaboration)

(Received 15 October 2024; published 4 December 2024)

DOI: 10.1103/PhysRevLett.133.239902

The numerical calculation of the theoretically predicted cross sections in Fig. 2 in the Letter were incorrect due to a coding error. As a result, the lower limits on the dyon mass, reported in Table I in the Letter, were overestimated by ∼10–1400 GeV. This error has been corrected now, and the amended cross-section curves and mass bounds are given in Fig. 1 and Table I, respectively. The theoretical cross sections presented in Supplemental Material [1] have been corrected, too.

The upper limits on the dyon production cross sections are not affected by this programming lapse. The magnetic-monopole ones have also been amended and match the originally calculated mass limits. The monopole cross-section limits are considerably stronger than their dyon counterparts, even for low electric charges. The reason is that for dyons only the negative charges are (conservatively) considered in the detection efficiency, unlike monopoles where both pair-produced

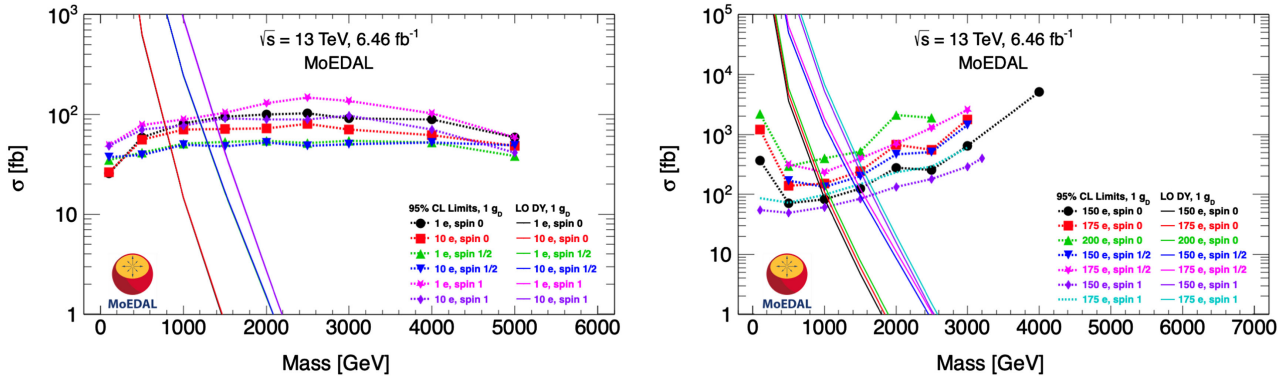


FIG. 1. Corrected version of the original Fig. 2 in the Letter. Cross-section upper limits at 95% CL for DY spin-0, ½, and 1 dyon-pair production, with magnetic charge $1g_D$ and multiple electric charges, in 13 TeV pp collisions. The solid lines are leading-order cross-section calculations.

Published by the American Physical Society under the terms of the Creative Commons Attribution 4.0 International license. Further distribution of this work must maintain attribution to the author(s) and the published articles title, journal citation, and DOI.

TABLE I. Corrected version of the original Table I in the Letter. 95% CL mass limits found in a Drell-Yan production model for spin-0, spin-½, and spin-1 dyon-pair direct production in LHC pp collisions, assuming β-independent couplings.

Magnetic charge	Spin	Electric charge																	
		0	1	2	3	4	5	6	10	15	20	25	50	75	100	125	150	175	200
		95% CL mass limits (GeV)																	
$1g_D$	0	870	750	750	750	750	750	750	760	780	790	810	920	970	1010	1010	1000	950	840
$2g_D$	0	1240	1110	1110	1110	1110	1110	1110	1120	1120	1110	1110	1100	1070	1050	1020	950	870	770
$3g_D$	0	1300	1170	1170	1170	1170	1170	1160	1170	1170	1160	1160	1130	1070	1020	940	850	⋯	⋯
$4g_D$	0	1200	1060	1060	1060	1060	1060	1060	1060	1060	1040	1030	970	900	⋯	⋯	⋯	⋯	⋯
$1g_D$	½	1410	1270	1270	1270	1270	1270	1260	1280	1300	1310	1330	1400	1450	1460	1420	1370	1310	⋯
$2g_D$	½	1810	1660	1660	1660	1660	1660	1650	1650	1650	1640	1640	1600	1550	1500	1420	1350	⋯	⋯
$3g_D$	½	1840	1700	1700	1690	1690	1680	1680	1670	1670	1650	1640	1580	1500	1420	1330	1280	⋯	⋯
$4g_D$	½	1680	1560	1550	1550	1540	1540	1540	1530	1520	1510	1480	1420	1340	1280	1210	⋯	⋯	⋯
$5g_D$	½	1460	1300	1300	1300	1300	1300	1310	1300	1290	1290	1290	1220	⋯	⋯	⋯	⋯	⋯	⋯
$1g_D$	1	1460	1340	1340	1350	1350	1350	1340	1360	1390	1420	1450	1550	1620	1670	1670	1650	1610	⋯
$2g_D$	1	1930	1790	1790	1790	1790	1790	1790	1800	1800	1790	1790	1780	1770	1740	1710	1640	1590	1520
$3g_D$	1	2040	1910	1910	1910	1900	1900	1900	1900	1890	1890	1890	1840	1790	1730	1670	1600	⋯	⋯
$4g_D$	1	1990	1860	1850	1850	1840	1840	1840	1840	1830	1820	1810	1750	1690	1620	1570	⋯	⋯	⋯
$5g_D$	1	1820	1690	1680	1680	1670	1660	1670	1650	1660	1640	1640	1570	1500	1480	⋯	⋯	⋯	⋯

particles are taken into account in the MMT acceptance calculation. The conclusions are modified quantitatively, yet the spirit remains the same, with the dyon mass bounds now ranging from 750 to 1910 GeV, continuing to be the strongest attained in collider experiments.

[1] See Supplemental Material at https://link.aps.org/supplemental/10.1103/PhysRevLett.126.071801#supplemental for a more detailed description of the MoEDAL detector; extra information on the determination of the probability of a false negative in the search for magnetic charge; and plots of the cross-section upper limits at 95% CL for dyon pair production for all dyon charge (electric and magnetic) and spin assignments considered.