

The CMS HCAL Collaboration (Updated 6 June 2012)

Yerevan Physics Institute, Yerevan, Armenia

S. Chatrchyan, V. Khachatryan, A.M. Sirunyan, A. Tumasyan

National Centre for Particle and High Energy Physics, Minsk, Belarus

V. Mossolov, N. Shumeiko

Universiteit Antwerpen, Antwerpen, Belgium

T. Cornelis, S. Ochesanu, B. Roland, Z. Staykova, H. Van Haevermaet, P. Van Mechelen, A. Van Spilbeeck

Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil

G.A. Alves, T. Martins, M.E. Pol, M. Vaz,

Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil

W.L. Ald'a Junior, W. Carvalho, J. Chinellato, C. De Oliveira Martins, D. Matos Figueiredo, E. Manganote, J. Molina, L. Mundim, H. Nogima, W.L. Prado Da Silva, A. Santoro, A. Zachi

Charles University, Prague, Czech Republic

M. Finger, M. Finger Jr.

Institute of High Energy Physics and Informatization, Tbilisi State University, Tbilisi, Georgia

Z. Tsamalaidze¹

Deutsches Elektronen-Synchrotron, Hamburg, Germany

K. Borras, P. Gunnolini, H. Jung², A. Knutsson, B. Lutz, P.M. Ribeiro Cipriano, N. Sen

Institute fur Experimentelle Kernphysik, Karlsruhe, Germany

C. Baus, I. Katkov³, R. Ulrich, H. Wohrmann

University of Athens, Athens, Greece

A. Panagiotou

KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary

G. Bencze, D. Horvath⁴

Panjab University, Chandigarh, India

S.B. Beri, R. Gupta, M. Jindal, M. Kaur, N. Nishu, L.K. Saini

Saha Institute of Nuclear Physics, Kolkata, India

S. Banerjee, S. Bhattacharya, B. Gomber, Sh. Jain, R. Khurana, M. Sharan

Tata Institute of Fundamental Research -EHEP, Mumbai, India

T. Aziz, M. Maity⁵, G. Majumder, K. Mazumdar, G.B. Mohanty, K. Sudhakar

Tata Institute of Fundamental Research -HECR, Mumbai, India

S. Banerjee, S. Dugad

Institute for Research in Fundamental Sciences (IPM), Tehran, Iran

S.M. Etesami⁶, A. Fahim⁷, A. Jafari⁷, S. Paktnat Mehdiabadi, M. Zeinali⁶

INFN Sezione di Trieste, Trieste, Italy

A. Penzo

Joint Institute for Nuclear Research, Dubna, Russia

A. Afanasyev, P. Bunin, Y. Ershov, O. Fedoseev, M. Gavrilenko, I. Golutvin, I. Gorbunov, V. Konoplynikov, A. Malakhov, P. Moisenz, V. Smirnov, A. Volodko, A. Zarubin

Institute for Nuclear Research, Moscow, Russia

Yu. Andreev, A. Dermenev, N. Krasnikov, A. Pashenkov, D. Tlisov, A. Toropin

Institute for Theoretical and Experimental Physics, Moscow, RussiaV. Epshteyn, M. Erofeeva, V. Gavrilov, M. Kossov², I. Kudinov, N. Lychkovskaya, V. Popov, G. Safronov, S. Semenov, V. Stolin, E. Vlasov, A. Zhokin**Moscow State University, Moscow, Russia**

A. Belyaev, E. Boos, M. Dubinin, L. Dudko, A. Ershov, A. Gribushin, V. Klyukhin, O. Kodolova, V. Korotkikh, I. Loktin, A. Markina, S. Obraztsov, M. Pstvol, S. Petrushanko, A. Popov, V. Savrin, A. Snigirev, I. Vardanyan

P.N. Lebedev Physical Institute, Moscow, Russia

V. Andreev, M. Azarkin, I. Dremin, M. Kirakosyan, A. Leonidov, G. Mesyats, A. Vinogradov

State Research Center of Russian Federation, Institute for High Energy Physics, Protvino, RussiaI. Bayshev, S. Bitioukov, V. Grishin², V. Krychkine, V. Petrov, R. Ryutin, A. Sobol, L. Tourtchanovitch, S. Troshin, A. Uzunian, A. Volkov**Universidad de Santiago de Compostela, Santiago, Spain**

R. Gomez-Reino

CERN, European Organization for Nuclear Research, Geneva, Switzerland

F. Santanastasio

Cukurova University, Adana, TurkeyA. Adiguzel, M.N. Bakirci⁸, S. Cerci⁹, C. Dozen, I. Dumanoglu, E. Eskut, S. Girgis, G. Gokbulut, E. Gurpinar, I. Hos, E.E. Kangal, G. Karapinar, A. Kayis Topaksu, G. Onengut, K. Ozdemir, S. Ozturk¹⁰, A. Polatoz, K. Sogut¹¹, D. Sunar Cerci⁹, B. Tali⁹, H. Topakli⁸, L.N. Vergili, M. Vergili**Middle East Technical University, Physics Department, Ankara, Turkey**

T. Aliev, M. Deniz, A.M. Guler, Ozpineci, M. Serin, R. Sever, M. Zeyrek

Bogazici University, Istanbul, TurkeyE. Gulmez, B. Isildak¹², M. Kaya¹³, O. Kaya¹³, S. Ozkorucuklu¹⁴, N. Sonmez¹⁵**Istanbul Technical University, Istanbul, Turkey**

K. Cankocak

National Scientific Center, Kharkov Institute of Physics and Technology, Kharkov, Ukraine

L. Levchuk

Baylor University, Waco, USA

K. Hatakeyama, H. Liu, T. Scarborough

The University of Alabama, Tuscaloosa, USA

P. Rumerio

Boston University, Boston, USA

A. Heister, C. Hill, P. Lawson, D. Lazic, J. Rohlf, St. John J, L. Sulak

Brown University, Providence, USA

G. Gennadiy, E. Laird, G. Landsberg, M. Narain, T. Sinthuprasith, K. Vang Tsang

University of California, Riverside, Riverside, USA

O.W. Long, H. Nguyen, S. Paramesvaran, J. Sturdy

University of California, Santa Barbara, Santa Barbara, USA

D. Stuart, W. To, C. West

California Institute of Technology, Pasadena, USA

A. Apresyan, Y. Chen, A. Mott, M. Spiropulu

Fairfield University, Fairfield, USA

D. Winn

Fermi National Accelerator Laboratory, Batavia, USA

S. Abdullin, J. Anderson, F. Chlebana, J. Freeman, D. Green, J. Hanlon, J. Hirschauer, U. Joshi,
S. Kunori, Y. Musienko¹⁶, S. Sharma, W.J. Spalding, S. Tkaczyk, R. Vidal, J. Whitmore, W. Wu

Florida International University, Miami, USA

V. Gaultney, S. Linn, P. Markowitz, G. Martinez

Florida State University, Tallahassee, USA

S.V. Gleyzer, S. Hagopian, V. Hagopian, M. Jenkins

Florida Institute of Technology, Melbourne, USA

M.M. Baarmann, B. Dorney, I. Vodopiyanov

The University of Iowa, Iowa City, USA

U. Akgun, E.A. Albayrak, B. Bilki¹⁷, W. Clarida, F. Duru, J.-P. Merlo, H. Mermerkaya¹⁸, A. Mestvirishvili, A. Moeller, J. Nachtman, C.R. Newsom, E. Norbeck, J. Olson, Y. Onel, F. Ozok, S. Sen, I. Schmidt, E. Tiras, T. Yetkin, K. Yi

The University of Kansas, Lawrence, USA

R.P. Kenny III, M. Murray, J.S. Wood

University of Maryland, College Park, USA

A. Baden, B. Calvert, S.C. Eno, J.A. Gomez, T. Grassi, N.J. Hadley, R.G. Kellogg, T. Kolberg, Y. Lu, M. Marionneau, A.C. Mignerey, A. Peterman, A. Skuja, J. Temple, M.B. Tonjes

University of Minnesota, Minneapolis, USA

S.C. Kao, K. Klaoetke, J. Mans, N. Pastika

University of Mississippi, University, USA

R. Kroeger, R. Rahmat, D.A. Sanders, L. Cremaldi

State University of New York at Buffalo, Buffalo, USA

S. Jain

Northwestern University, Evanston, USA

A. Anastassov, M. Velasco, S. Won

University of Notre Dame, Notre Dame, USA

A. Heering, J. Karmgard, T. Pearson, R. Ruchti

Princeton University, Princeton, USA

E. Berry, V. Halyo, P. Hebda, A. Hunt, P. Lujan, D. Marlow, T. Medvedeva, H. Saka, C. Tully, A. Zuranski

Purdue University, West Lafayette, USA

V.E. Barnes, A.T. Laasanen

University of Rochester, Rochester, USA

A. Bodek, Y.S. Chung, P. de Barbaro, Y. Eshaq, A. Garcia-Bellido, P. Goldenzweig, J. Han, A. Harel, D.C. Miner, D. Vishnevskiy, M. Zielinski

The Rockefeller University, New York, USA

A. Bhatti, R. Ciesielski

Texas A&M University, College Station, USAW. Flanagan, T. Kamon¹⁹, R. Montalvo, T. Sakuma**Texas Tech University, Lubbock, USA**

N. Akchurin, J. Damgov, P.R. Dudero, K. Kovitanggoon, S.W. Lee, T. Libeiro, I. Volobouev

Vanderbilt University, Nashville, USA

A. Gurrola

Wayne State University, Detroit, USA

C. Milstene.

1: Now at Joint Institute for Nuclear Research, Dubna, Russia

2: Also at CERN, European Organization for Nuclear Research, Geneva, Switzerland

3: Also at Moscow State University, Moscow, Russia

4: Also at Institute of Nuclear Research ATOMKI, Debrecen, Hungary

5: Also at University of Visva-Bharati, Santiniketan, India

6: Also at Isfahan University of Technology, Isfahan, Iran

7: Also at Sharif University of Technology, Tehran, Iran

8: Also at Gaziosmanpasa University, Tokat, Turkey

9: Also at Adiyaman University, Adiyaman, Turkey

10: Also at The University of Iowa, Iowa City, USA

11: Also at Mersin University, Mersin, Turkey

12: Also at Ozyegin University, Istanbul, Turkey

13: Also at Kafkas University, Kars, Turkey

14: Also at Suleyman Demirel University, Isparta, Turkey

15: Also at Ege University, Izmir, Turkey

16: Also at Institute for Nuclear Research, Moscow, Russia

17: Also at Argonne National Laboratory, Argonne, USA

18: Also at Erzincan University, Erzincan, Turkey

19: Also at Kyungpook National University, Daegu, Korea