Scientific usage of the Pencil Code

Search results using `http://adslabs.org`

July 6, 2014

A search using `http://adslabs.org` indicates the papers where the Pencil Code is being quoted. In the following we quote the papers that are directly making use of the code either for their own scientific work of those authors, or for code comparison purposes. We include conference proceedings, which make about 15–20% of all papers. We classify the references by year and by topic, although the topics are often overlapping. The primary application of the Pencil Code lies in astrophysics, in which case we classify mostly by the field of research.

1 Papers by year

As of July 2014, the Pencil Code has been used for a total of 355 research papers.

19 times in 2014 (Gibbons et al., 2014a; Pan et al., 2014; Lyra, 2014; Bhat et al., 2014; Losada et al., 2014; Rheinhardt et al., 2014; Mitra et al., 2014; Turner et al., 2014; Jabbari et al., 2014; Brandenburg and Stepanov, 2014; Chian et al., 2014; Brandenburg, 2014; Gibbons et al., 2014b; Brandenburg et al., 2014; Park, 2014; Käpylä et al., 2014; Modestov et al., 2014; Cole et al., 2014; Rüdiger and Brandenburg, 2014),

51 times in 2013 (Lyra and Kuchner, 2013; Warnecke et al., 2013c; Barekat and Brandenburg, 2013; Bourdin et al., 2013b; Väisälä et al., 2013; Félix et al., 2013; Warnecke and Brandenburg, 2013; Park, 2013b,a,a; Singh and Jingade, 2013; Bourdin et al., 2013a; Getling, 2013; Devlen et al., 2013; Gent et al., 2013a; Brandenburg et al., 2013b; Pan and Padoan, 2013; Mitra et al., 2013; Kemel et al., 2013b; van Wettum et al., 2013; Bourdin et al., 2013b; Candelaresi and Brandenburg, 2013a; Kahniashvili et al., 2013; Lyra, 2013; Gent et al., 2013b; Bhat and Subramanian, 2013; Raettig et al., 2013; Del Sordo et al., 2013; Chamandy et al., 2013; Di Bernardo and Torkelsson, 2013; Jabbari et al., 2013; Dittrich et al., 2013; Bingert and Peter, 2013; Käpylä et al., 2013c; Warnecke et al., 2013b; Käpylä et al., 2013b; Brandenburg and Rädler, 2013; Brandenburg et al., 2013b; Bykov et al., 2013; Brandenburg, 2013; Warnecke et al., 2013a; Rempel et al., 2013; Mantere et al., 2013; Kemel et al.,

2013a; Losada et al., 2013; Kemel et al., 2013b; Käpylä et al., 2013a; Candelaresi and Brandenburg, 2013b; Svedin et al., 2013; Brandenburg et al., 2013a),

50 times in 2012 (Félix et al., 2012; Losada et al., 2012; Peter and Bingert, 2012; Lambrechts and Johansen, 2012; Kahniashvili et al., 2012; Tevzadze et al., 2012; Kemel et al., 2012a; Warnecke et al., 2012c; Gibbons et al., 2012; Latter and Papaloizou, 2012; Hubbard, 2012; Gaburov et al., 2012; Yang and Krumholz, 2012; Snellman et al., 2012b; Lyra and Mac Low, 2012; McNally et al., 2012a; Käpylä et al., 2012b; Bonanno et al., 2012; Haugen et al., 2012; Park and Blackman, 2012a,b; Warnecke et al., 2012b; Brandenburg and Guerrero, 2012; Mantere and Cole, 2012; Rogachevskii et al., 2012; Käpylä et al., 2012a; McNally et al., 2012b; Maron et al., 2012; Horn et al., 2012; Lyra and Kuchner, 2012; Brandenburg et al., 2012a; Yang et al., 2012; Kitchatinov and Brandenburg, 2012; Brandenburg and Petrosyan, 2012; Hubbard and Brandenburg, 2012; Guerrero et al., 2012; Rice et al., 2012; Kemel et al., 2012b; Rheinhardt and Brandenburg, 2012; Peter et al., 2012; Brandenburg et al., 2012c; Rempel et al., 2012; Del Sordo et al., 2012; Candelaresi and Brandenburg, 2012; Brandenburg et al., 2012d,b; Snellman et al., 2012c,a; Warnecke et al., 2012a; Johansen et al., 2012),

60 times in 2011 (Gastine and Dintrans, 2011c; Rice et al., 2011; Käpylä et al., 2011a; Mantere et al., 2011; Kemel et al., 2011a; Rogachevskii et al., 2011; Käpylä et al., 2011c; Brandenburg, 2011c; Rädler et al., 2011; Tarjei Jensen et al., 2011; Brandenburg et al., 2011c; Oishi and Mac Low, 2011; Ruoskanen et al., 2011; Fromang et al., 2011; Chatterjee et al., 2011c; Hydle Rivedal et al., 2011; Guerrero and Käpylä, 2011; Chatterjee et al., 2011b; Warnecke and Brandenburg, 2011a; Kemel et al., 2011b; Bejarano et al., 2011; Zacharias et al., 2011a; Brandenburg, 2011a; Candelaresi and Brandenburg, 2011a; Cantiello et al., 2011a; Rempel et al., 2011; Flock et al., 2011; Käpylä et al., 2011b; Zacharias et al., 2011b; Kemel et al., 2011c; Del Sordo and Brandenburg, 2011a; Warnecke et al., 2011b; Gastine and Dintrans, 2011a; Bingert and Peter, 2011; Käpylä and Korpi, 2011; Johansen et al., 2011; Del Sordo and Brandenburg, 2011b; Gastine and Dintrans, 2011b; Rüdiger et al., 2011; Lyra and Klahr, 2011; Mitra et al., 2011; Brandenburg et al., 2011a; Candelaresi et al., 2011b; Babkovskaia et al., 2011; Hubbard and Brandenburg, 2011; Brandenburg, 2011b; Chatterjee et al., 2011a; Hubbard et al., 2011; Cantiello et al., 2011b; Brandenburg et al., 2011b; Warnecke et al., 2011a; Brandenburg and Nordlund, 2011; Guerrero et al., 2011; Warnecke and Brandenburg, 2011b; Candelaresi et al., 2011c; Candelaresi and Brandenburg, 2011b; Candelaresi et al., 2011a; Brandenburg, 2011d; Del Sordo and Brandenburg, 2011b; Chatterjee, 2011),

31 times in 2010 (Brandenburg and Del Sordo, 2010; Warnecke and Brandenburg, 2010; Hubbard and Brandenburg, 2010; Rheinhardt and Brandenburg, 2010; Haugen et al., 2010; Mitra et al., 2010c; Käpylä et al., 2010a; Madarassy and Brandenburg, 2010; Gastine and Dintrans, 2010; Käpylä et al., 2010b; Kahniashvili et al., 2010; Lyra et al., 2010; Johansen and Lacerda, 2010; Del Sordo et al., 2010; Fromang et al., 2010;

Mitra et al., 2010a; Käpylä et al., 2010d; Baggaley et al., 2010; Korpi et al., 2010; Brandenburg et al., 2010b; Brandenburg and Dobler, 2010; Mitra et al., 2010b; Brandenburg, 2010b; Guerrero et al., 2010; Käpylä et al., 2010c; Brandenburg, 2010a; Brandenburg et al., 2010a; Chatterjee et al., 2010; Rädler and Brandenburg, 2010; Bingert et al., 2010),

37 times in 2009 (Yang et al., 2009; Baggaley et al., 2009; Rempel et al., 2009; Oishi and Mac Low, 2009; Johansen et al., 2009b; Snellman et al., 2009; Børve et al., 2009; Vermersch and Brandenburg, 2009; Heinemann and Papaloizou, 2009; Käpylä and Brandenburg, 2009; Johansen et al., 2009a; Käpylä et al., 2009b,a; Maron and Mac Low, 2009; Mitra et al., 2009b; Zacharias et al., 2009b; Piontek et al., 2009; Fromang et al., 2009; Lyra et al., 2009b; Mitra et al., 2009a; Käpylä et al., 2009c; Liljeström et al., 2009; Lyra et al., 2009a; Brandenburg, 2009a,f,e,b,c; Brandenburg et al., 2009a; Brandenburg, 2009d; Hubbard and Brandenburg, 2009; Sur and Brandenburg, 2009; Hubbard et al., 2009; Brandenburg et al., 2009b; Rädler and Brandenburg, 2009; Zacharias et al., 2009a),

25 times in 2008 (Lyra et al., 2008a; Brandenburg et al., 2008b; Gastine and Dintrans, 2008b; Johansen and Levin, 2008; Gastine and Dintrans, 2008c; Workman and Armitage, 2008; Käpylä and Brandenburg, 2008; Johansen et al., 2008; Gastine and Dintrans, 2008a; Yousef et al., 2008; Babkovskaia et al., 2008; Scharmer et al., 2008; Maron et al., 2008; Brandenburg et al., 2008a; Lyra et al., 2008b; Ruszkowski et al., 2008; Gellert et al., 2008; Rädler and Brandenburg, 2008; Tilgner and Brandenburg, 2008; Sur et al., 2008; Brandenburg, 2008a; Käpylä et al., 2008; Brandenburg et al., 2008c; Brandenburg, 2008b; Youdin and Johansen, 2008),

16 times in 2007 (Brandenburg et al., 2007a; Käpylä and Brandenburg, 2007; Fromang et al., 2007; Fromang and Papaloizou, 2007; Oishi et al., 2007; Heinemann et al., 2007; Brandenburg and Käpylä, 2007; Schekochihin et al., 2007; Johansen et al., 2007b,a; Ruszkowski et al., 2007; Johansen and Youdin, 2007; Youdin and Johansen, 2007; Sur et al., 2007; Brandenburg et al., 2007b; Gustafsson et al., 2007),

18 times in 2006 (Ouyed et al., 2006; Hupfer et al., 2006; Fromang et al., 2006; de Val-Borro et al., 2006; Haugen and Brandenburg, 2006; Johansen et al., 2006c; Brandenburg, 2006c,b; Shukurov et al., 2006; Mee and Brandenburg, 2006; Snodin et al., 2006; Brandenburg and Dintrans, 2006; Gustafsson et al., 2006; Brandenburg, 2006a; Johansen et al., 2006a; Heinemann et al., 2006; Dobler et al., 2006; Johansen et al., 2006b),

24 times in 2005 (Johansen and Klahr, 2005; McMillan and Sarson, 2005; Brandenburg, 2005d; Brandenburg and Subramanian, 2005a; Ruediger, 2005; Schekochihin et al., 2005; Brandenburg, 2005c; Dorch, 2005; Johansen et al., 2005; Brandenburg and Subramanian, 2007; Brandenburg, 2007b,a; Brandenburg et al., 2005b; Brandenburg and Ruediger, 2005; Brandenburg and Subramanian, 2005b,c; Christensson et al.,

2005; Brandenburg and Käpylä, 2005; Brandenburg, 2005a; Brandenburg et al., 2005a; Brandenburg and Blackman, 2005; Brandenburg, 2005b),

19 times in 2004 (Nordlund, 2004; Brandenburg et al., 2004a; Brandenburg and Sandin, 2004; Haugen and Brandenburg, 2004b; Haugen et al., 2004c; Dorch, 2004b; Haugen and Brandenburg, 2004a; Haugen et al., 2004a; Yousef et al., 2004; Brandenburg et al., 2004c; Johansen et al., 2004; Maron et al., 2004; Brandenburg et al., 2004b,d; Pearson et al., 2004; Brandenburg and Matthaeus, 2004; Haugen et al., 2004b; Dorch, 2004a; Dobler and Getling, 2004),

and 6 times in 2003 (Yousef et al., 2003; Yousef and Brandenburg, 2003; Haugen et al., 2003; Brandenburg, 2003; Brandenburg et al., 2003; Dobler et al., 2003).

2 Papers by topic

The Pencil Code has been used for the following research topics

1. **Interstellar and intercluster medium as well as early Universe**

   (a) *Interstellar and intercluster medium* (Chamandy et al., 2013; Gent et al., 2013a,b; Bykov et al., 2013; Yang and Krumholz, 2012; Mantere and Cole, 2012; Rogachevskii et al., 2012; Ruoskanen et al., 2011; Piontek et al., 2009; Ruszkowski et al., 2008, 2007; Brandenburg et al., 2007b; Gustafsson et al., 2007, 2006; Brandenburg et al., 2005a; Haugen et al., 2004b; Brandenburg et al., 2003).

   (b) *Small-scale dynamos and reconnection* (Bhat and Subramanian, 2013; Brandenburg, 2011c; Baggaley et al., 2009, 2010; Schekochihin et al., 2005, 2007; Haugen and Brandenburg, 2004b; Haugen et al., 2004c,a, 2003; Dobler et al., 2003).

   (c) *Primordial magnetic fields and decaying turbulence* (Brandenburg et al., 2014; Kahniashvili et al., 2012, 2013; Tevzadze et al., 2012; Candelaresi and Brandenburg, 2011a; Kahniashvili et al., 2010; Del Sordo et al., 2010; Christensson et al., 2005; Yousef et al., 2004).

2. **Planet formation and inertial particles**

   (a) *Planet formation* (Gibbons et al., 2014b; Turner et al., 2014; Gibbons et al., 2014a; Lyra and Kuchner, 2013; Dittrich et al., 2013; Gibbons et al., 2012; Hubbard, 2012; Horn et al., 2012; Lyra and Kuchner, 2012; Yang et al., 2012; Lambrechts and Johansen, 2012; Johansen et al., 2012; Fromang et al., 2011; Johansen et al., 2011; Lyra and Klahr, 2011; Lyra et al., 2010; Johansen and Lacerda, 2010; Yang et al., 2009; Johansen et al., 2009b; Oishi and Mac Low, 2009; Børve et al., 2009; Lyra et al., 2009a,b, 2008a; Johansen et al., 2008; Lyra

et al., 2008b; Youdin and Johansen, 2008; Oishi et al., 2007; Johansen et al., 2007a,b; Johansen and Youdin, 2007; Youdin and Johansen, 2007; Johansen et al., 2006a,b,c; Johansen and Klahr, 2005; Johansen et al., 2004, 2005).

(b) *Inertial particles* (Pan et al., 2014; Pan and Padoan, 2013; Mitra et al., 2013; Haugen et al., 2012; Hydle Rivedal et al., 2011; Haugen et al., 2010).

3. **Accretion discs and shear flows**

(a) *Accretion discs and shear flows* (Lyra, 2014; Väisälä et al., 2013; Lyra, 2013; Raettig et al., 2013; Di Bernardo and Torkelsson, 2013; Latter and Papaloizou, 2012; Gaburov et al., 2012; Lyra and Mac Low, 2012; Rice et al., 2012, 2011; Oishi and Mac Low, 2011; Flock et al., 2011; Käpylä and Korpi, 2011; Käpylä et al., 2010a; Fromang et al., 2010; Korpi et al., 2010; Johansen et al., 2009a; Heinemann and Papaloizou, 2009; Fromang et al., 2009; Johansen and Levin, 2008; Workman and Armitage, 2008; Fromang et al., 2007; Fromang and Papaloizou, 2007; Ouyed et al., 2006; Brandenburg, 2005d).

(b) *Shear flows* (Modestov et al., 2014; Singh and Jingade, 2013; Vermersch and Brandenburg, 2009; Käpylä et al., 2009c; Yousef et al., 2008; Babkovskaia et al., 2008; Brandenburg et al., 2004a).

4. **Solar physics**

(a) *Coronal heating and coronal mass ejections* (Bourdin et al., 2013b; Warnecke and Brandenburg, 2013; Bourdin et al., 2013a; van Wettum et al., 2013; Bourdin et al., 2013b; Bingert and Peter, 2013; Peter and Bingert, 2012; Warnecke et al., 2012b; Peter et al., 2012; Warnecke et al., 2012a; Warnecke and Brandenburg, 2011a; Zacharias et al., 2011b,a; Warnecke et al., 2011b; Bingert and Peter, 2011; Warnecke and Brandenburg, 2011b; Warnecke et al., 2011a; Warnecke and Brandenburg, 2010; Bingert et al., 2010; Zacharias et al., 2009b,a).

(b) *Helical dynamos, helical turbulence, and catastrophic quenching* (Brandenburg and Stepanov, 2014; Chian et al., 2014; Brandenburg, 2014; Park, 2013b,a, 2014; Candelaresi and Brandenburg, 2013a; Park, 2013a; Del Sordo et al., 2013; Brandenburg, 2013; Rempel et al., 2013; Candelaresi and Brandenburg, 2013b, 2012; Brandenburg et al., 2012d; Rempel et al., 2012; Park and Blackman, 2012b; Brandenburg and Guerrero, 2012; Hubbard and Brandenburg, 2012; Park and Blackman, 2012a; Brandenburg, 2011a; Rempel et al., 2011; Mitra et al., 2011; Candelaresi et al., 2011b; Hubbard and Brandenburg, 2011; Brandenburg, 2011b; Chatterjee et al., 2011a; Hubbard et al., 2011; Candelaresi et al., 2011c; Candelaresi and Brandenburg, 2011b; Candelaresi et al., 2011a; Brandenburg, 2011d; Guerrero et al., 2011; Hubbard and Brandenburg, 2010; Mitra et al., 2010a,b; Brandenburg, 2010b; Guerrero et al., 2010; Brandenburg, 2010a; Brandenburg et al., 2010a; Chatterjee et al., 2010; Rädler and Brandenburg, 2010; Rempel et al., 2009; Käpylä and Brandenburg, 2009; Brandenburg,

2009a,e; Brandenburg et al., 2009a; Brandenburg, 2009d,f; Sur and Brandenburg, 2009; Brandenburg, 2009b,c; Rädler and Brandenburg, 2008; Tilgner and Brandenburg, 2008; Brandenburg, 2008a; Brandenburg et al., 2008c; Brandenburg, 2008b; Brandenburg and Käpylä, 2007; Brandenburg and Subramanian, 2007; Brandenburg, 2007b,a, 2006c,b; Shukurov et al., 2006; Mee and Brandenburg, 2006; Snodin et al., 2006; Brandenburg and Dintrans, 2006; Brandenburg, 2006a; Brandenburg et al., 2005b; Brandenburg and Subramanian, 2005c,b; Brandenburg and Käpylä, 2005; Brandenburg, 2005a; Brandenburg and Blackman, 2005; Brandenburg and Subramanian, 2005a; Brandenburg, 2005b,c; Brandenburg et al., 2004d; Brandenburg and Matthaeus, 2004; Brandenburg and Sandin, 2004; Yousef and Brandenburg, 2003).

(c) *Strongly stratified MHD turbulence and NEMPI* (Losada et al., 2014; Mitra et al., 2014; Jabbari et al., 2014; Brandenburg et al., 2013b; Warnecke et al., 2013c; Brandenburg et al., 2013b; Jabbari et al., 2013; Kemel et al., 2013b,a; Losada et al., 2013; Käpylä et al., 2013a; Kemel et al., 2013b; Losada et al., 2012; Kemel et al., 2012a; Käpylä et al., 2012a; Brandenburg et al., 2012a; Kemel et al., 2012b, 2011a; Brandenburg et al., 2011c; Kemel et al., 2011b,c; Rüdiger et al., 2011; Brandenburg et al., 2010b).

(d) *Convection in Cartesian domains* (Félix et al., 2013; Käpylä et al., 2013b; Getling, 2013; Félix et al., 2012; Svedin et al., 2013; Guerrero et al., 2012; Gastine and Dintrans, 2011c; Mantere et al., 2011; Käpylä et al., 2011c; Guerrero and Käpylä, 2011; Cantiello et al., 2011a,b; Gastine and Dintrans, 2008a,b,c, 2010, 2011a,b; Brandenburg et al., 2011b; Käpylä et al., 2008, 2009b, 2010b; Scharmer et al., 2008; Heinemann et al., 2006, 2007; Nordlund, 2004; Dobler and Getling, 2004).

(e) *Global convection and dynamo simulations* (Cole et al., 2014; Käpylä et al., 2010d, 2011a,b, 2012b, 2013c, 2014; Mantere et al., 2013; Warnecke et al., 2012c, 2013a,b; Mitra et al., 2009b, 2010c; Brandenburg et al., 2007a; Dobler et al., 2006; McMillan and Sarson, 2005; Dorch, 2004a,b, 2005).

5. **Miscellanea**

(a) *Turbulent transport and test-field method* (Rheinhardt et al., 2014; Rüdiger and Brandenburg, 2014; Devlen et al., 2013; Brandenburg et al., 2004c, 2008a,b, 2009b, 2012b,c, 2013a; Brandenburg and Rädler, 2013; Snellman et al., 2009, 2012a,b,c; Kitchatinov and Brandenburg, 2012; Rheinhardt and Brandenburg, 2010, 2012; Rogachevskii et al., 2011; Rädler et al., 2011; Chatterjee, 2011; Brandenburg and Del Sordo, 2010; Madarassy and Brandenburg, 2010; Käpylä et al., 2010c; Hubbard and Brandenburg, 2009; Hubbard et al., 2009; Rädler and Brandenburg, 2009; Käpylä et al., 2009a; Mitra et al., 2009a; Liljeström et al., 2009; Sur et al., 2008; Käpylä and Brandenburg, 2007, 2008; Sur et al., 2007; Hupfer et al., 2006; Yousef et al., 2003).

(b) *Hydrodynamic and MHD instabilities* (Del Sordo et al., 2012; Chatterjee et al., 2011b,c; Bejarano et al., 2011; Brandenburg and Ruediger, 2005; Brandenburg et al., 2004d; Brandenburg, 2003).

(c) *Hydrodynamic turbulence* (Brandenburg and Petrosyan, 2012; Del Sordo and Brandenburg, 2011a,b; Brandenburg and Nordlund, 2011; Haugen and Brandenburg, 2004a, 2006; Brandenburg et al., 2004b; Pearson et al., 2004).

(d) *Turbulent combustion, front propagation, & radiation* (Cavecchi et al., 2013; Barekat and Brandenburg, 2013; Tarjei Jensen et al., 2011; Brandenburg et al., 2011a; Babkovskaia et al., 2011).

(e) *Code comparison* (Lovelace and Romanova, 2014; Mayoral et al., 2014; Recchi, 2014; Berera and Linkmann, 2014; Jenkins et al., 2014; Igor, 2013; Fromang, 2013; Martínez Pillet, 2013; Rein, 2012; Freytag et al., 2012; McNally et al., 2012a; Bonanno et al., 2012; Maron et al., 2012; McNally et al., 2012b; Hanasz et al., 2010; Brandenburg and Dobler, 2010; Maron and Mac Low, 2009; Maron et al., 2008; Gellert et al., 2008; Fromang et al., 2006; de Val-Borro et al., 2006; Ruediger, 2005; Maron et al., 2004).

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