

## Patent Selections

The patents annotated in this section have been selected from various patent collections. They are recent patents categorized by different analytical methods, design, manufacturing, analysis and design of automobiles, aircraft, manufacturing plants, industrial instruments, machines, heating and cooling systems processes involved and related to mechanical engineering and are relevant to the articles published in this journal issue.

### MAGNETORHEOLOGICAL ELASTOMERS

1. Browne, A.L., Johnson, N.L., Aase, J.H., Brown, J.H. Active material actuated louver system. **WO08094731 (2008)**.
2. Altan, O.D., Browne, A.L., Johnson, N.L., Repa, B.S., Stevenson, R. Active material based haptic communication systems. **WO08063692 (2008)**.
3. Alexander, P.W., Browne, A.L., Johnson, N.L., Mankame, N.D., Muhammad, H., Wanke, T. Active material based tunable property automotive brackets. **US20087401845 (2008)**.
4. Henry, C.P., Barvosa-Carter, W., Browne, A.L., Massey, C., Johnson, N.L. Door closure assist assemblies. **US20080104796A1 (2008)**.
5. Browne, A.L., Johnson, N.L., Sears, I.G. On demand morphable automotive body moldings and surfaces. **US20087370894 (2008)**.
6. Browne, A.L., Johnson, N.L. Reversibly opening and closing a grille using active materials. **US20080133090A1 (2008)**.

### RUBBER-LIKE MATERIALS & RHEOLOGICAL PROPERTIES

1. Calabro, A., Gross, R.A., Darr, A.B. Hydroxyphenyl cross-linked macromolecular network and applications thereof. **US20087368502 (2008)**.
2. Lammerschop, O., Hartsell, S., Agarwal, R. Pumpable epoxy paste adhesives resistant to wash-off. **WO08045270 (2008)**.
3. Snell, D.A., Kuttappa, S., Loper, E. Golf balls with improved feel. **US20080176677A1 (2008)**.

### CONTROLLED DROP DEPOSITION & SPRAYS

1. Farmer, J.C. Amorphous metal formulations and structured coatings for corrosion and wear resistance. **WO08063891 (2008)**.
2. Michniak-Kohn, B.B., Thakur, R.A., Florek, C.A., Kohn, J.B. Electrospun matrices for delivery of hydrophilic and lipophilic compounds. **WO08055038 (2008)**.
3. Srinivasan, S., Ammann, D., Brookman, D., Maharajh, N., Grollmund, G., Sprinkel, F.M., Mcrae, D. Continuous high pressure delivery system. **WO08042912 (2008)**.
4. Fukuda, T. Evaporation source device. **US20080128094A1 (2008)**.
5. Clemmet, S., Stokes, D. Organic devices. **GB2439636 (2008)**.

### CONTROLLED DROP DEPOSITION & MICROLENSES

1. Kislev, H. ROS generation by nanoparticles, microbubbles and their use. **WO08065652 (2008)**.
2. Meredith, G. Electro-optic lenses employing resistive electrodes. **WO08027890 (2008)**.
3. Sato, M., Tashiro, T., Takashima, M., Serizawa, S. Pattern forming material, pattern forming apparatus, and pattern forming process. **US20080118867A1 (2008)**.
4. Roberts, C.B., McLeod, M.C., Anand, M. Selection and deposition of nanoparticles using CO<sub>2</sub>-expanded liquids. **US20087384879 (2008)**.
5. Owens, D.E., Peppas, N.A. Temperature-sensitive nanoparticles for controlled drug delivery. **WO08039920 (2008)**.
6. Andrews, G.D., Bailey, R.K., Blanchet, G.B., Caspar, J.V., Catron, J.W., Chesterfield, R.J., Felder, T., Gao, F., Glicksman, H.D., Goldfinger, M.B., Harmer, M.A., Jaycox, G.D., Johnson, L.K., Keusseyan, R.L., Keys, D.E., Malajovich, I., Marshall, W.J., McCord, E.F., McEwen, C.N., Meth, J.S., Nunes, G., Schifino, R.S., Shannon, P.J., Sharp, K.G., Tassi, N.G., Visscher, K.B. Donor elements and processes for thermal transfer of nanoparticle layers. **WO08091285 (2008)**.

### CONTROLLED DROP DEPOSITION & SOLID SURFACES

1. Baker, K.C., Drelich, J.W. Deposition of calcium-phosphate (CAP) and calcium-phosphate with bone morphogenic protein (CAP+BMP) coatings on metallic and polymeric surfaces. **WO08066613 (2008)**.
2. Li, C.Y., Li, L.Y. Patterning nanotubes with vapor deposition. **WO08063698 (2008)**.
3. Bright, V.M., Elam, J., Fabreguette, F., George, S.M., Hoivik, N., Lee, Y., Linderman, R., Tripp, M. Atomic layer deposition on micro-mechanical devices. **US20087426067 (2008)**.
4. Garcia, A., Lindsay, S., Hayes, M.A., Gust, J.D. Magnetofluidics. **US20080213853A1 (2008)**.
5. Martin, J.R. Process for wafer level treatment to reduce stiction and passivate micromachined surfaces and compounds used therefore. **US20087364942 (2008)**.

**FLUID RHEOLOGY & DROP DEPOSITION**

1. Gibson, D., Higgins, J., Desrousseaux, S., Howe, A., Clarke, A., Nicholas, C., Hone, J. Aqueous inkjet fluid. *WO08075049 (2008)*.
2. Medina, A.N., Smith, D.A., Scott, R. Production of ophthalmic devices based on photo-induced step growth polymerization. *WO08076729 (2008)*.
3. Rodrigues, K.A. Hydrophobically modified polymers and its use as dispersant and for preventing scale. *EP1947062 (2008)*.
4. Brunelle, P. Polydispersed composite emulsions. *WO08074138 (2008)*.
5. Ahn, D., Choi, D. Process for forming films and films formed by the process. *WO08085234 (2008)*.

**REDUCTION OF NO<sub>x</sub> EMISSIONS**

1. Pierpont, D.A., Leman, S.A. Power source thermal management and emissions reduction system. *WO08016426 (2008)*.
2. Boley, W.C., Meister, R.E., Niese, S.R. Engine emissions control system. *WO08054588 (2008)*.
3. Gaur, S., Bansal, V. Combustion controlled NO<sub>x</sub> reduction method and device. *US20080115773A1 (2008)*.
4. Eismark, J., Balthasar, M. Device for reducing soot emissions in a vehicle combustion engine. *WO08082330 (2008)*.
5. Carlill, T.W. Internal combustion engine and control arrangement therefore. *EP1936153 (2008)*.
6. Langer, D.A., Bardasz, E.A., Abraham, W.D. Emulsified fuels and engine oil synergy. *US20087413583 (2008)*.

**COAL FIRED ELECTRIC UTILITIES & REDUCTION OF NO<sub>x</sub> EMISSIONS**

1. Tran, P.H., Lapadula, G.D., Liu, X. Ammonia oxidation catalyst for the coal fired utilities. *US20087393511 (2008)*.
2. Faka, S.A. Power generation system for a marine vessel. *WO08031147 (2008)*.
3. Goldman, A.J. Hybrid generation with alternative fuel sources. *US20087331178 (2008)*.
4. Baldwin, T., Ward, J., Budd, A. Filter for determination of mercury in exhaust gases. *US20087368289 (2008)*.

**NO<sub>x</sub> EMISSIONS & PULVERIZED COAL COMBUSTION**

1. Morrison, D.K., Lipinski, W.T., Hartsock, D.K. Reducing NO<sub>x</sub> emissions in industrial combustion systems. *GB2446045 (2008)*.
2. Larue, A.D., Kahle, W.J., Sayre, A.N., Sarv, H., Rowley, D.R. Burner with center air jet. *EP1892470 (2008)*.

3. Boardman, R.D., Carrington, R.A. Method oil shale pollutant sorption/NO<sub>x</sub> reburning multi-pollutant control. *US20087384615 (2008)*.
4. Chang, R., Facchiano, A. Staged-coal injection for boiler reliability and emissions reduction. *US20080105176A1 (2008)*.
5. Agostini, M.D., Milcetic, F.A. Pulverized solid fuel burner. *EP1936270 (2008)*.
6. Bool, L.E., Kobayashi, H. Modifying transport air to control NO<sub>x</sub>. *WO08051798 (2008)*.

**NANOFLUIDS & HEAT TRANSFER**

1. Baney, R.H., Tulenko, J.S., Powers, K.W. Nuclear reactor having efficient and highly stable thermal transfer fluid. *WO08005590 (2008)*.
2. Roper, D.K., Ahn, W. Increasing heat transduction via surface plasmon resonance by modulating resonant continuous-wave irradiation. *WO08094814 (2008)*.
3. Zachariah, M.R., Kim, S.H. Carbon nanotube structures formed on large free floating substrates. *WO08054349 (2008)*.

**THERMAL CONDUCTIVITY**

1. Oman, T.P., Claucherty, G.A. Wafer applied thermal-mechanical interface. *EP1930944 (2008)*.
2. Malhan, R.K., Johnson, M.C., Buttay, C., Rashid, J., Udrea, F. Interconnections between two substrates in power electronic package for chips and components. *GB2444978 (2008)*.
3. Williams, M.K., Smith, T.M., Fesmire, J.E., Weiser, E.S., Sass, J.P. Foam/aerogel composite materials for thermal and acoustic insulation and cryogen storage. *WO08054551 (2008)*.
4. Smith, J.D.B., Stevens, G., Wood, J.W. Patterning on surface with high thermal conductivity materials. *WO08013570 (2008)*.
5. Litton, D.A., Ulion, N.E., Trubelja, M.F., Maloney, M.J., Warriar, S.G. Thermal barrier coatings with low thermal conductivity comprising lanthanide sesquioxides. *EP1953268 (2008)*.

**BRAZED PLATE HEAT EXCHANGERS**

1. Memory, S.B., Yin, J., Jia, T., Lazarevic, M., Strahle, R. Brazed plate high pressure heat exchanger. *US20087343965 (2008)*.
2. Sjoedin, P. Brazing material. *WO08060226 (2008)*.
3. Schmelz, G.L. Plate heat exchanger with auxiliary fluid circuit. *US20080156466A1 (2008)*.
4. Taras, M.F., Lifson, A. Heat exchanger with improved condensate removal. *WO08079133 (2008)*.
5. Wang, J., Shih, W. Hybrid heat exchangers. *US20087331381 (2008)*.

**DOUBLE-WALL PLATE HEAT EXCHANGERS**

1. Yoshioka, Y. Photothermographic material. *US20087425409 (2008)*.
2. Tafas, T.P. Energy recovery system in an engine. *US20080022681A1 (2008)*.
3. Deng, W., Goddard, W.A. Applications of double-walled nanotubes. *US20080008925A1 (2008)*.

**SHELL PLATE HEAT EXCHANGERS**

1. Kontu, M.O., Virtanen, M. Plate heat exchanger and uses of a heat exchanger plate. *WO08046952 (2008)*.
2. Clavenna, L.A., Cody, I.A., Cooper, A.E., Colgrove, S., Huffman, H.L., Lobo, J.D., Song, L., Wolf, H.A., Brons, G.B., Lutz, G.A., Yeganeh, M.S. Reduction of fouling in heat exchangers. *WO08002423 (2008)*.
3. Morgan, R., Leah, R., Girvan, B. Fuel cell stack assembly. *GB2447872 (2008)*.
4. Eaton, A.P., Messersmith, D., Bailey, E.E. LNG system employing stacked vertical heat exchangers to provide liquid reflux stream. *US20080022716A1 (2008)*.

**FUSION PLATE HEAT EXCHANGERS**

1. Foroni, F., Bernardi, R. Process for welding special-steel tubes to a tube plate coated with a DPW28 duplex steel comprising machining of resting and welding seats in the spigots of the tube plate; heat exchanger comprising a tube bundle obtained by said process. *WO08065478 (2008)*.
2. Kidwell, J.E., Fraim, M.L. Geo-thermal heat exchanging system facilitating the transfer of heat energy using coaxial-flow heat exchanging structures installed in the earth for introducing turbulence into the flow of the aqueous-based heat transfer fluid flowing along the outer flow channel. *US20087370488 (2008)*.
3. Kidwell, J.E., Fraim, M.L. Electromagnetic signal transmission/reception tower and accompanying base station employing system of coaxial-flow heat exchanging structures installed in well bores to thermally control the environment housing electronic equipment within the base station. *US20087363769 (2008)*.
4. Kidwell, J.E., Fraime, M.L. Coaxial-flow heat transfer system employing a coaxial-flow heat transfer structure having a helically-arranged fin structure disposed along an outer flow channel for constantly rotating an aqueous-based heat transfer fluid flowing therewithin so as to improve heat transfer with geological environments. *US20087347059 (2008)*.

**VEHICLE SUSPENSION**

1. Morales, A.A. Suspension arm for a motor vehicle wheel suspension. *EP1911612 (2008)*.
2. Miyashita, N., Kabe, K., Mizuno, M. Tire characteristic calculation method, tire dynamic element parameter value derivation method, vehicle traveling

simulation method, and tire designing method and vehicle designing method in which consideration is given to tire friction ellipse. *EP1892637 (2008)*.

3. Landa, S.I. Aluminium alloy. *EP1882754 (2008)*.

**VEHICLE SUSPENSION SYSTEMS & STABILITY**

1. Davis, L.W. Compressible fluid magnetorheological suspension strut. *US20087413063 (2008)*.
2. Lindqvist, A. Control and power supply network for vehicle braking system. *US20087359786 (2008)*.
3. Davis, L.W. Compressible fluid independent active suspension. *US20080111324 (2008)*.
4. Bresie, D. Actuators. *WO08100830 (2008)*.
5. Spieker, A. Speed control strategy. *US20080195290A1 (2008)*.
6. Pelchen, C., Licher, S., Wellmann, R., Bunsmann, W., Kalinke, P. Process for controlling and regulating an active chasis system. *US20080051958A1 (2008)*.

**VEHICLE SUSPENSION SYSTEMS & CONTROL**

1. Steen, M., Eriksson, A., Lauri, E. Vehicle and method for automatic gear selection in a gearbox forming part of a vehicle. *US20087396317 (2008)*.
2. Elmoselhy, S.A.M. E-springs for suspension systems. *GB2446662 (2008)*.
3. Luce, W.E., Maitland, S. Aircraft shock strut having improved cylinder and bearings. *WO08048335 (2008)*.
4. Hackel, V., Schnabel, C., Zevchak, D. Control system for an internal combustion engine and a vehicle having the same. *US20087359789 (2008)*.
5. Saieg, S.G., Bromley, B.J. Pneumatic slider suspension locking pin system. *EP1944224 (2008)*.

**VISCOUS FLUIDS**

1. Guerrero, S.C., Rasa, M., Schubert, U.S. Magnetic fluids and their use. *WO08055645 (2008)*.
2. Abad, C., Robinson, K.L., Hughes, T.L. Polymer viscosifying agent for wellbore fluids. *GB2444158 (2008)*.
3. Wei, N., Huang, Y., Song, X., Kaylor, R. Self-calibrated flow-through assay devices. *EP1890149 (2008)*.
4. Boyd, B.M., Mudumba, S., Farr, S.J. Viscous formulations and their use in needle-free injection. *US20080214995A1 (2008)*.

**VISCOUS FLUIDS ANALYSIS**

1. Ahrenst, A., Lungwitz, B., Fredd, C.N., Abad, C., Gurmen, N., Chen, Y., Lassek, J., Howard, P., Huey, W.T., Azmi, Z., Hodgson, D., Samuelson, M., Bustos, O. Friction reduction fluids. *WO08020388 (2008)*.
2. Coleman, B., Jolley, D.W., Loukus, J., RAU, C.B. Variable-density preforms. *WO08070636 (2008)*.

3. Pfeffer, R., Quevedo, J. Inverse fluidization for purifying fluid streams. *WO08060940 (2008)*.
4. Varadaraj, R., Brons, C. Demulsification of water-in-oil emulsion. *WO08020909 (2008)*.

#### VISCOUS FLUIDS & CHANNEL FLOW

1. Padmanabhan, A., Satren, E., Bonne, U., Higashi, R. Tilt-insensitive flow sensor. *US20087331224 (2008)*.
2. Sundararajan, N. Fabricating structures in microfluidic channels based on hydrodynamic focusing. *US20087381361 (2008)*.
3. Kriegel, R.M., Funkhouser, G.P. Viscosified treatment fluids comprising polycarboxylic acid gelling agents and associated methods. *US20087325615 (2008)*.
4. Qiu, D., Tonkovich, A.L., Silva, L.J., Long, R.Q., Yang, B.L., Trenkamp, K.M., Reeman, J.A. Process for forming an emulsion using microchannel process technology. *EPI875959 (2008)*.
5. Lajem, S., Reinhartz, A. Multistep reaction lateral flow capillary device. *US20080145835A1 (2008)*.
6. Mason, T.G., Wilking, J.N., Graves, S.M., Meleson, K. Elastic vitrification of emulsions by droplet rupturing. *WO08088918 (2008)*.

#### VISCOUS FLUIDS & POISSON

1. Wagner, N., Kirkwood, J.E., Egres, R.G. Shear thickening fluid containment in polymer composites. *EPI897609 (2008)*.
2. Symington, W.A., Kaminsky, R.D., Hutfilz, J.M. Enhanced shale oil production by *in situ* heating using hydraulically fractured producing wells. *US20080087428A1 (2008)*.

#### SUPER LARGE RADIO TELESCOPE

1. Melnychuk, S.T., Partlo, W.N., Fomenkov, I.V., Oliver, I.R., Ness, R.M., Bowering, N.R., Khodykin, O., Rettig, C.L., Blumenstock, G.M., Dyer, T.S., Simmons, R.D., Hoffman, J.R., Johnson, R.M. Extreme ultraviolet light source. *US20087368741 (2008)*.

2. Tran, B.Q. Nano-electronics. *US20087393699 (2008)*.
3. Tran, B.Q. Nano-electronic memory array. *US20087330369 (2008)*.

#### SUPER LARGE ANTENNA

1. Yeom, G., Lee, Y., Kim, K. Inductively coupled plasma processing apparatus having internal linear antenna for large area processing. *US20087338577 (2008)*.
2. Oppenlander, J., Haussler, C., Schopohl, N., Friesch, A., Tomes, J. Superconducting quantum antenna. *US20087369093 (2008)*.
3. Sano, M., Imono, S., Niino, T. Structure having characteristic of transmitting or absorbing electromagnetic wave. *EPI879442 (2008)*.
4. Brister, M., Saint, S., Petisce, J.R., Hanson, C., Simpson, P., Pryor, J., Brauker, J.H. Dual electrode system for a continuous analyte sensor. *WO08041984 (2008)*.
5. Williams, J.D. Contact grid array system. *US20087371073 (2008)*.
6. Ogino, T., Okubora, A., Hirabayashi, T., Kosemura, T., Hayashi, K. High frequency module board device. *US20087366629 (2008)*.

#### METALLURGICAL TEMPERATURE SENSORS

1. Hagen, D.L., Ginter, G., Traverso, A., Goheen, B., McGuire, A., Rankin, J. Thermodynamic cycles with thermal diluent. *WO08045396 (2008)*.
2. Rountree, T.D., O'Brien, T.D., Beghini, K. Flexible circuit temperature sensor assembly for flanged mounted electronic devices. *US20087416332 (2008)*.
3. Guo, S., Eriksen, O.H.S., Potasek, D.P. High temperature resistant solid state pressure sensor. *WO08036701 (2008)*.
4. Vinegar, H.J., Sandberg, C.L. Temperature limited heater with a conduit substantially electrically isolated from the formation. *US20080017370A1 (2008)*.