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Prizes

Biggsby Medal

Lloyd, Jonathan (Recipient), 2006

Royal Society Industrial Fellow

Lloyd, Jonathan (Recipient), 2010

Royal Society Wolfson Merit Award

Lloyd, Jonathan (Recipient), 2015

Schlumberger Medal

Lloyd, Jonathan (Recipient), 2018

Top 100 Practicing UK Scientists

Lloyd, Jonathan (Recipient), 2014

Research outputs

Identification of a stable hydrogendriven microbiome in highly radioactive storage facilities in Sellafield, UK

Ruiz Lopez, S., Foster, L., Boothman, C., Cole, N., Morris, K. & Lloyd, J., 24 Nov 2020, In : *Frontiers in Microbiology*.
DOI: 10.3389/fmicb.2020.587556

The Microbiology of Nuclear Waste Disposal

Lloyd, J. & Cherkouk, A., 13 Nov 2020, 1st ed. Amsterdam: Elsevier BV. 376 p.

Biominalization of Sr by the cyanobacterium *Pseudanabaena catenata* under alkaline conditions

Foster, L., Cleary, A., Bagshaw, H., Sigeo, D., Pittman, J., Morris, K., Zhang, K., Smith, K., Lloyd, J. & Vettese, G., 14 Oct 2020, In : *Frontiers in Earth Science*. 8, 556244.
DOI: 10.3389/feart.2020.556244

Generation of Alkalinity by Stimulation of Microbial Iron Reduction in Acid Rock Drainage Systems: Impact of Natural Organic Matter Types.

Jimenez Castaneda, M., Scarinci, C., Burke, A., Boothman, C., Vaughan, D., Lloyd, J. & van Dongen, B. E., 30 Sep 2020, In : *Water Air and Soil Pollution*. 231

Natural attenuation of lead by microbial manganese oxides in a karst aquifer

Newsome, L., Bacon, C. G. D., Song, H., Luo, Y., Sherman, D. M. & Lloyd, J., 7 Sep 2020, (Accepted/In press) In : *Science of the Total Environment*.

Airborne Bacterial and Eukaryotic Community Structure across the United Kingdom Revealed by High-Throughput Sequencing

Gallagher, M., Crawford, I., Topping, D., Lloyd, J., Allen, G., Bower, K., Boothman, C., Robinson, C. & Song, H-K., 31 Jul 2020, In : *Atmosphere*. 11, 8, p. 802 16 p., 11(8), 802.
DOI: 10.3390/atmos11080802

Enhanced Microbial Degradation of Irradiated Cellulose Under Hyperalkaline Conditions

Bassil, N., Small, J. S. & Lloyd, J., 21 May 2020, (Accepted/In press) In : *FEMS Microbiology Ecology*.

Radiation tolerance of *Pseudanabaena catenata*, a cyanobacterium relevant to the First Generation Magnox Storage Pond

Foster, L., Muhamadali, H., Boothman, C., Sigee, D., Pittman, J., Goodacre, R., Morris, K. & Lloyd, J., 7 Apr 2020, In : *Frontiers in Microbiology*. 11, 515.

DOI: 10.3389/fmicb.2020.00515

Characterization of primary biological aerosols over the UK using next generation sequencing: UK Aerosol Society

Song, H-K., Lloyd, J., Robinson, C. H., Bower, K., Crawford, I., Trembath, J. & Gallagher, M., 2 Apr 2020, *UK Aerosol Society Bioaerosols Focus Meeting 15*. The Aerosol Society

A Novel "Microbial Bait" Technique for Capturing Fe(III)-Reducing Bacteria

Macaulay, B. M., Boothman, C., van Dongen, B. E. & Lloyd, J. R., 11 Mar 2020, In : *Frontiers in Microbiology*.

DOI: 10.3389/fmicb.2020.00330

Identification of persistent sulfidogenic bacteria in shale gas produced waters

Cliffe, L., Nixon, S., Daly, R., Taylor, K., Eden, B., Boothman, C., Wilkins, M. J., Wrighton, K. C. & Lloyd, J., 21 Feb 2020, In : *Frontiers in Microbiology*.

DOI: 10.3389/fmicb.2020.00286

Microbial bloom formation in a high pH spent nuclear fuel pond

Foster, L., Boothman, C., Ruiz-lopez, S., Boshoff, G., Jenkinson, P., Sigee, D., Pittman, J. K., Morris, K. & Lloyd, J. R., Feb 2020, In : *Science of the Total Environment*. p. 137515

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Multiple lines of evidence identify U(V) as a key intermediate during U(VI) reduction by *Shewanella oneidensis* MR1

Vettese, G. F., Morris, K., Natrajan, L. S., Shaw, S., Vitova, T., Galanzew, J., Jones, D. L. & Lloyd, J. R., 14 Jan 2020, In : *Environmental Science & Technology*.

DOI: 10.1021/acs.est.9b05285

Bacterial production of vanadium ferrite spinel (Fe,V)3O4 nanoparticles

Coker, V., Van Der Laan, G., Telling, N. D., Lloyd, J., Byrne, J. M., Arenholz, E. & Patrick, R., 2020, In : *Mineralogical Magazine*. p. 1-38

DOI: 10.1180/mgm.2020.55

Biomining of Cu2S nanoparticles by *Geobacter sulfurreducens*

Kimber, R. L., Bagshaw, H., Smith, K., Buchanan, D. M., Coker, V. S., Cavet, J. S. & Lloyd, J. R., 2020, In : *Applied and environmental microbiology*.

DOI: 10.1128/AEM.00967-20

Manganese and cobalt redox cycling in laterites: Biogeochemical and bioprocessing implications

Newsome, L., Solano Arguedas, A., Coker, V., Boothman, C. & Lloyd, J., 2020, In : *Chemical Geology*. 531, p. 1-15 15 p., 119330.

DOI: 10.1016/j.chemgeo.2019.119330

Metal Recovery Using Microbial Electrochemical Technologies

Christgen, B., Suarez, A., Milner, E., Boghani, H., Sadhukhan, J., Shemfe, M., Gadkari, S., Kimber, R. L., Lloyd, J. R., Rabaey, K., Feng, Y., Premier, G. C., Curtis, T., Yu, E. & Head, I. M., 30 Oct 2019, *Resource Recovery from Wastes: Towards a Circular Economy*. Macaskie, L. E., Sapsford, D. J. & Mayes, W. M. (eds.). Royal Society of Chemistry, p. 87-112 26 p. (Green Chemistry Series).

DOI: 10.1039/9781788016353-00087

New Frontiers in Metallic Bio-nanoparticle Catalysis and Green Products from Remediation Processes

Lloyd, J. R., Coker, V. S., Kimber, R. L., Pearce, C. I., Watts, M. P., Omajali, J. B. & Macaskie, L. E., 30 Oct 2019, *Resource Recovery from Wastes: Towards a Circular Economy*. Macaskie, L. E., Sapsford, D. J. & Mayes, W. M. (eds.). Royal Society of Chemistry, p. 244-265 22 p. (Green Chemistry Series).
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Microbial reduction of Fe(III) coupled to the biodegradation of isosaccharinic acid (ISA)

Kuipers, G., Boothman, C., Bagshaw, H., Beard, R., Bryan, N. D. & Lloyd, J. R., 1 Oct 2019, In : *Applied Geochemistry*.
DOI: 10.1016/j.apgeochem.2019.104399

Seasonal blooms of neutrophilic Betaproteobacterial Fe(II) oxidizers and Chlorobi in iron-rich coal mine drainage sediments

Blackwell, N., Perkins, W., Palumbo-Roe, B., Bearcock, J., Lloyd, J. R. & Edwards, A., 5 Sep 2019, In : *FEMS Microbiology Ecology*.
DOI: 10.1093/femsec/fiz140

Synthesis of copper catalysts for click chemistry from distillery wastewater using magnetically recoverable bionanoparticles

Kimber, R., Parmeggiani, F., Joshi, N., Rakowski, A., Haigh, S., Turner, N. & Lloyd, J., 8 Jul 2019, In : *Green Chemistry*.
DOI: 10.1039/C9GC00270G

Bioelectrochemical treatment and recovery of copper from distillery waste effluents using power and voltage control strategies

Kaur, A., Boghani, H. C., Milner, E. M., Kimber, R. L., Michie, I. S., Daalmans, R., Dinsdale, R. M., Guwy, A. J., Head, I. M., Lloyd, J. R., Yu, E. H., Sadhukhan, J. & Premier, G. C., 5 Jun 2019, In : *Journal of Hazardous Materials*. 371, p. 18-26 9 p.
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The impact of iron nanoparticles on technetium-contaminated groundwater and sediment microbial communities

Newsome, L., Morris, K., Cleary, A., Masters-Waage, N., Boothman, C., Joshi, N., Atherton, N. & Lloyd, J., 15 Feb 2019, In : *Journal of Hazardous Materials*. 364, p. 134-142 9 p.
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Bioremediation of Strontium and Technetium Contaminated Groundwater using Glycerol Phosphate

Cleary, A., Newsome, L., Shaw, S., Lloyd, J., Boothman, C., Boshoff, G., Atherton, N. & Morris, K., 2019, In : *Chemical Geology*.
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Metaschoepite dissolution in sediment column systems – implications for uranium speciation and transport

Bower, W., Morris, K., Livens, F. R., Mosselmans, J. F. W., Fallon, C. M., Fuller, A. J., Natrajan, L. S., Boothman, C., Lloyd, J., Utsunomiya, S., Grolmund, D., Ferreira Sanchez, D., Jilbert, T., Parker, J. E., Neill, T. & Law, G. T. W., 2019, In : *Environmental Science & Technology*.
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Imaging redox activity and Fe(II) at the microbe-mineral interface during Fe(III) reduction

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Response of Bentonite Microbial Communities to Stresses Relevant to Geodisposal of Radioactive Waste

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Combined chemical and microbiological degradation of tetrachloroethene during the application of Carbo-Iron at a contaminated field site

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DOI: 10.1016/j.scitotenv.2018.01.310

A Novel Adaptation Mechanism Underpinning Algal Colonization of a Nuclear Fuel Storage Pond

MeGraw, V. E., Brown, A. R., Boothman, C., Goodacre, R., Morris, K., Sigee, D., Anderson, L. & Lloyd, J., 26 Jun 2018, In : mBio. 9, 3
DOI: 10.1128/mBio.02395-17

Additives in plasticised polyvinyl chloride fuel microbial nitrate reduction at high pH: Implications for nuclear waste disposal

Nixon, S., van Dongen, B. E., Boothman, C., Small, J. S. & Lloyd, J., 2018, In : Frontiers in Environmental Science.
DOI: 10.3389/fenvs.2018.00097

Anaerobacillus isosaccharinicus sp. nov., an alkaliphilic bacterium which degrades isosaccharinic acid

Bassil, N. & Lloyd, J., 2018, In : International Journal of Systematic and Evolutionary Microbiology.
DOI: 10.1099/ijsem.0.002721

Biogeochemistry of U, Ni, and As in two meromictic pit lakes at the Cluff Lake uranium mine, northern Saskatchewan

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Biosynthesis and Characterization of Copper Nanoparticles Using Shewanella oneidensis: Application for Click Chemistry

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Effect of humic acid & bacterial exudates on sorption-desorption interactions of 90Sr with brucite

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Microbial reduction of natural Fe(III) minerals; towards the sustainable production of functional magnetic nanoparticles

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NanoSIMS imaging of extracellular electron transport processes during microbial iron(III) reduction

Newsome, L., Lopez Adams, R., Downie, H., Moore, K. & Lloyd, J., 2018, In : FEMS Microbiology Ecology.
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Optimising the transport properties and reactivity of microbially-synthesised magnetite for in situ remediation

Joshi, N., Liu, F., Watts, M. P., Williams, H., Coker, V., Schmid, D., Hofmann, T. & Lloyd, J., 2018, In : Scientific Reports.
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Positron emission tomography to visualise in-situ microbial metabolism in natural sediments

Thorpe, C. L., Williams, H. A., Boothman, C., Lloyd, J. R. & Morris, K., 2018, In : Applied Radiation and Isotopes.
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Impacts of Repeated Redox Cycling on Technetium Mobility in the Environment

Masters-Waage, N., Morris, K., Lloyd, J., Shaw, S., Mosselmans, J. F. W., Boothman, C., Bots, P., Rizoulis, A., Livens, F. & Law, G., 19 Dec 2017, In : Environmental Science and Technology. 51, 24, p. 14301 10.1021/acs.est.7b02426.

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Life cycle assessment of sustainable raw material acquisition for functional magnetite bionanoparticle production

Sadhukhan, J., Joshi, N., Shemfe, M. & Lloyd, J. R., 1 Sep 2017, In : Journal of Environmental Management. 199, p. 116-125 10 p.

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Modelling bacterial effects on mass transport in porous media

Baychev, T., Gregory, S., Tomov, M., Boothman, C., Jivkov, A. & Lloyd, J., 20 Aug 2017.

Highly efficient degradation of organic pollutants using a microbially-synthesized nanocatalyst

Watts, M. P., Cutting, R., Joshi, N., Coker, V., Mosberger, A., Zou, B., Davies, C., van Dongen, B. E., Hofstetter, T. & Lloyd, J., 30 Apr 2017, In : International Biodeterioration and Biodegradation. 119

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Draft Genome Sequences of Four Alkaliphilic Bacteria Belonging to the Anaerobacillus Genus

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Microbial impacts on ^{99m}Tc migration through sandstone under highly alkaline conditions relevant to radioactive waste disposal

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Bioconversion of Fe(III) oxides into magnetic nanoparticles: Processes and applications

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Guar gum stimulates biogenic sulfide production at elevated pressures: Implications for shale gas extraction

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Long-term immobilization of technetium via bioremediation with slow-release substrates

Newsome, L., Cleary, A., Morris, K. & Lloyd, J., 2017, In : Environmental Science and Technology. 51, 3

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Quantifying technetium and strontium bioremediation potential in flowing sediment columns.

Thorpe, C., Law, G., Lloyd, J., Williams, H., Atherton, N. & Morris, K., 2017, In : Environmental Science and Technology.

DOI: 10.1021/acs.est.7b02652

The microbial community structure and arsenic biogeochemistry in two arsenic impacted aquifers in Bangladesh

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Upgrading of heavy oil by dispersed biogenic magnetite catalysts

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Imaging the hydrated microbe-metal interface using nanoscale spectrum imaging

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A novel aerobic mechanism for reductive palladium biomineralization and recovery by escherichia coli

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Retention of 99mTc at ultra-trace levels in flowing column experiments - insights into bioreduction and biomineralisation for remediation at nuclear facilities.

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Bacterial Diversity in the Hyperalkaline Allas Springs (Cyprus), a Natural Analogue for Cementitious Radioactive Waste Repository

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Biogenic methane in shale gas and coal bed methane: a review of current knowledge and gaps.

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Effects of microbial Fe(III) reduction on the sorption of Cs and Sr on biotite and chlorite

Brookshaw, D. R., Lloyd, J. R., Vaughan, D. J. & Patrick, R. A. D., 2016, In : Geomicrobiology Journal. 33, 3-4, p. 206-215

Influence of riboflavin on the reduction of radionuclides by Shewanella oneidensis MR-1

Cherkouk, A., Law, G., Rizoulis, A., Law, K., Renshaw, J., Morris, K., Livens, F. & Lloyd, J., 2016, In : Dalton Transactions. 45, p. 5030-5037 8 p.
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The Microbial Ecology of a Hyper-Alkaline Spring, and Impacts of an Alkali-Tolerant Community During Sandstone Batch and Column Experiments Representative of a Geological Disposal Facility for Intermediate-Level Radioactive Waste

Smith, S. L., Rizoulis, A., West, J. M. & Lloyd, J. R., 2016, In : Geomicrobiology Journal. DOI: 10.1080/01490451.2015.1049677

Microbial degradation of cellulosic material under intermediate-level waste simulated conditions

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Microbial degradation of isosaccharinic acid under conditions representative for the far field of radioactive waste disposal facilities

Kuippers, G., Bassil, N. M., Boothman, C., Bryan, N. & Lloyd, J. R., 1 Nov 2015, In : Mineralogical Magazine. 79, 6, p. 1443-1454 12 p.

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Microbially mediated reduction of Np(V) by a consortium of alkaline tolerant Fe(III)-reducing bacteria

Williamson, A. J., Morris, K., Boothman, C., Dardenne, K., Law, G. T. W. & Lloyd, J., 1 Nov 2015, In : Mineralogical Magazine. 79, 6, p. 1287-1295 9 p.

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Treatment of Alkaline Cr(VI)-Contaminated Leachate with an Alkaliphilic Metal-Reducing Bacterium

Watts, M. P., Khijniak, T. V., Boothman, C. & Lloyd, J. R., Aug 2015, In : Applied and environmental microbiology. 81, 16

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Uranium biominerals precipitated by an environmental isolate of Serratia under anaerobic conditions

Newsome, L., Morris, K. & Lloyd, J. R., 1 Jul 2015, In : P L o S One. 10, 7

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Scale-up of the Production of Highly Reactive Biogenic Magnetite Nanoparticles Using Geobacter sulfurreducens

Byrne, J. M., Muhamadali, H., Coker, V., Cooper, J. & Lloyd, J. R., 13 May 2015, In : Journal of the Royal Society. Interface. 12

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Metabolic profiling of Geobacter sulfurreducens during scale-up

Muhamadali, H., Xu, Y., Ellis, D. I., Allwood, W., Rattray, N. J. W., Correa, E., Alrabiah, H., Lloyd, J. R. & Goodacre, R., May 2015, In : Applied and environmental microbiology. 81, 10, p. 3288-3298 11 p.

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Biogenic nano-magnetite and nano-zero valent iron treatment of alkaline Cr(VI) leachate and chromite ore processing residue

Watts, M. P., Coker, V. S., Parry, S. A., Patrick, R. A. D., Thomas, R. A. P., Kalin, R. & Lloyd, J. R., Mar 2015, In : Applied Geochemistry. 54, p. 27-42 16 p.

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Geochemical association of Pu and Am in selected host-phases of contaminated soils from the UK and their susceptibility to chemical and microbiological leaching

Kimber, R. L., Corkhill, C. L., Amos, S., Livens, F. R. & Lloyd, J. R., 4 Feb 2015, In : Journal of Environmental Radioactivity. 142, p. 96-102 7 p.

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Bio-stimulation by Glycerol Phosphate to Precipitate Recalcitrant Uranium(IV) Phosphate

Newsome, L., Morris, K., Trivedi, D., Bewsher, A. & Lloyd, J. R., 2015, In : Environmental Science & Technology. 49, 18, p. 11070-11078 9 p.

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Effective treatment of alkaline Cr(VI) contaminated leachate using a novel Pd-bionanocatalyst: Impact of electron donor and aqueous geochemistry

Watts, M. P., Coker, V. S., Parry, S. A., Thomas, R. A. P., Kalin, R. & Lloyd, J. R., 2015, In : Applied Catalysis B: Environmental. 170-171, p. 162-172 11 p.

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Fluorescence spectroscopy and microscopy as tools for monitoring redox transformations of uranium in biological systems

Jones, D. L., Andrews, M. B., Swinburne, A. N., Botchway, S. W., Ward, A. D., Lloyd, J. R. & Natrajan, L. S., 2015, In : *Chemical Science*. 6, 9, p. 5133-5138 6 p.

DOI: 10.1039/c5sc00661a

Geomicrobial interactions with other transition metals (chromium, molybdenum, vanadium, technetium), metalloids (polonium), actinides (uranium, neptunium, and plutonium), and the rare earth elements

Lloyd, J. R., Coates, J. D., Williamson, A. J. & Watts, M. P., 2015, *Ehrlich's Geomicrobiology*. Ehrlich, H. L., Newman, D. K. & Kappler, A. (eds.). 6 ed. Routledge, 26 p.

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Microbial degradation of isosaccharinic acid at high pH

Bassil, N. M., Bryan, N., Lloyd, J. R. & Bewsher, A., 2015, In : *ISME J*. 9, 2, p. 310-20 289 p.

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Phenotypic characterisation of *Shewanella oneidensis* MR-1 exposed to X-radiation

Brown, A. R., Correa, E., Xu, Y., AlMasoud, N., Pimblott, S. M., Goodacre, R. & Lloyd, J. R., 2015, In : *PLoS ONE*. 10, 6

DOI: 10.1371/journal.pone.0131249

Redox Interactions of Tc(VII), U(VI), and Np(V) with Microbially Reduced Biotite and Chlorite

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