DESCRIPTION

The aim of *Cement and Concrete Research* is to publish the best research on the materials science and engineering of cement, cement composites, mortars, concrete and other allied materials that incorporate cement or other mineral binders. In doing so, the journal will focus on reporting major results of research on the properties and performance of cementitious materials; novel experimental techniques; the latest analytical and modelling methods; the examination and the diagnosis of real cement and concrete structures; and the potential for improved materials. The fields which the journal aims to cover are:

- **Processing**: Cement manufacture, admixtures, mixing, rheology and hydration. While the majority of articles will be concerned with Portland cements, we encourage articles on other mineral binders, such as alumino-silicates (often referred to as geopolymers), calcium aluminates, calcium sulfoaluminates, magnesia-based cements, as well as in a more limited way on lime and/or gypsum-based materials.
- **Chemical, microstructural and structural characterization** of the unhydrated components and of hydrated systems including: the chemistry (structure, thermodynamics and kinetics), crystal structure, pore structure of cementitious materials, characterization techniques, and the modelling on atomistic, microstructural and structural levels.
- **The properties and modelling** of cement and concrete, including: fundamental physical properties in both fluid and hardened state; transport, mechanical and other properties; the processes of degradation of cementitious materials; and the modelling of properties and degradation processes, as a means of predicting short-term and long-term performance, of relating a material's structure to its properties and of designing materials of improved performance, in particular with lower environmental impact. Papers dealing with corrosion will be considered provided their clearly relate to process fundamentally affected by the interplay between steel reactivity and a surrounding cementitious material.
- **Applications** for cement, mortar and concrete keeping a clear focus on fundamental questions of materials science and engineering focus will be welcome on topics including: concrete technology, rheology control, fiber reinforcement, waste management, recycling, life cycle analysis, novel concretes and digital fabrication.

The journal's principal publications are original articles containing new information, major reviews and selected papers from important conferences. Discussion of published material and rapid communications will form part of the journal where appropriate. The journal will focus on papers with a broad interest, based upon their subject area, the quality of the research, the novelty of the results and the potential for assimilation of the findings.
AUDIENCE

Materials scientists, civil and structural engineers.

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- Processing: Cement manufacture, mixing and rheology, admixtures and hydration. While the majority of articles will be concerned with Portland cements, we encourage articles on other cement systems, such as calcium aluminate.
- Structural and Microstructural Characterisation of the unhydrated components and of hydrated systems including: the chemistry, crystal structure, pore structure of cement and concrete, characterisation techniques, and structural and microstructural modelling.
- The properties of cement and concrete, including: fundamental physical properties; transport, mechanical and other properties, the processes of degradation of cement and concrete; and the modelling of properties, both as a means of predicting short and long performance, and as a means of relating a material's structure to its properties.
- Applications for cement and concrete, including: concrete technology, fibre reinforcement, waste management, and novel concretes.

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*List of keywords*
A. PROCESSING
   Acceleration
   Bleeding
   Calorimetry
   Curing
   Dispersion
   Drying
   Fineness
   Fresh Concrete
   Grinding
   Humidity
   Hydration
   Kinetics
   Microwave Processing
   Mixture Proportioning
   pH
   Reaction
   Retardation
   Rheology
   Temperature
   Thermal Treatment
   Vibration
   Workability

B. STRUCTURE, MICROSTRUCTURE, CHARACTERIZATION
   Amorphous Material
   Backscattered Electron Imaging
   Calcium-Silicate-Hydrate (C-S-H)
   Characterization
   Crack Detection
   Crystal Size
Crystal Structure
EDX
Glass
Hydration Products
Image Analysis
Interfacial Transition Zone
Mercury Porosimetry
Microcracking
Microstructure
Particle Size Distribution
Petrography
Pore Size Distribution
Pore Solution
SEM
Small-Angle X-Ray Scattering
Spectroscopy
Surface Area
Surface Layer
TEM
Thermal Analysis
Thermodynamic Calculations
X-Ray Diffraction

C. PROPERTIES
Adsorption
Aging
Alkali-Aggregate Reaction
Bending Strength
Bond Strength
Carbonation
Compressive Strength
Corrosion
Creep
Cycles
Degradation
Delayed Ettringite Formation (DEF)
Diffusion
Durability
Elastic Moduli
Electrical Properties
Electrochemical Properties
Expansion
Fatigue
Finite Element Analysis
Fracture Toughness
Freezing and Thawing
Long-Term Performance
Magnetic Properties
Mechanical Properties
Micromechanics
Permeability
Physical Properties
Pull-Out Strength
Shrinkage
Stability
Strain Effect
Sulfate Attack
Tensile Properties
Transport Properties
D. COMPOSITION
Admixture
Aggregate
Alkali Activated Cement
Alkalis
BaO
Blended Cement
CdO
Ca3Al2O6
Calcium Aluminate Cement
Calcium Aluminoferrite
CaO
Ca2SiO4
Ca(OH)2
Ca3SiO5
3CaO?3Al2O3?CaSO4
CaCO3
Cement
Cement Paste
Chemically Bonded Ceramics
Chloride
Chromium
Clinker
Cobalt
Ettringite
Filler
Fly Ash
Fluoride
Fluxes
Granulated Blast-Furnace Slag
Heavy Metals
High-Range Water Reducers
Hydrogarnet
Lead
Lithium Compounds
Metakaolin
MgO
Mineralizers
Monosulfate
Nitrate
Organic Acids
Organic Materials
Polymers
Portland Cement
KOH
Pozzolan
Reinforcement
Silica Fume
Sulfate
Sulfate Resistant Cements
Sulfoaluminate
Toxic Metal
Zinc

E. APPLICATIONS, SPECIAL TREATMENT
Cement Manufacture
Composite
Concrete
Fiber Reinforcement
High-Performance Concrete