

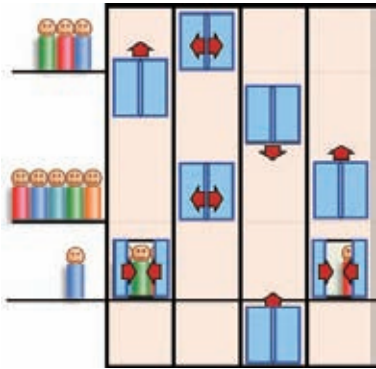
Multicar-Elevator Group Control Algorithm for Interference Prevention and Optimal Call Allocation

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IEEE Transactions on Systems, Man, and Cybernetics—Part A: Systems and Humans, 41, 311-322(2011)

Multicar-elevator (MCE) systems, implementing two or more elevator cars within a shaft, have been proposed to increase the transportation capacity within buildings, without requiring additional space. However, their implementation requires a group control method to allocate service calls efficiently, while preventing interference among cars. For this purpose, in this paper we propose an MCE group control algorithm that implements an interference risk-evaluation, a schedule-completion-time minimization function, and idle-car parking strategies. Unlike other methods, our algorithm does not restrict the movement of elevator cars. The simulation results show that it has a good

performance under low and medium passenger arrival rates.



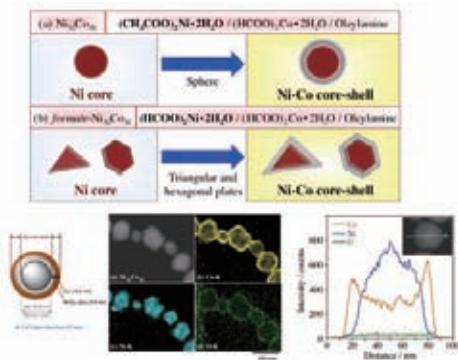
Nucleation and Growth of Magnetic Ni-Co (Core-Shell) Nanoparticles in a One-pot Reaction under Microwave Irradiation

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Chemistry of Materials, 23, 75-84, (2011)

We have successfully prepared Ni-Co (core-shell) nanoparticles in a one-pot reaction under microwave irradiation. The Ni nanoparticles catalyzed the reduction of Co<sup>2+</sup> with oleylamine. Co<sup>2+</sup> was reduced on the surface of the Ni nanoparticles and then Co shells were overgrown on the Ni core to form Ni-Co (core-shell) nanoparticles. The composition and crystalline shape of the Ni-Co nanoparticles were easily controlled by changing the molar ratios of Ni : Co and the different nickel precursors used for synthesis, respectively. It is expected that these Ni-Co nanoparticles, combining properties of both Ni and Co, may find use in many applications

including catalytic oxidation, hydrogenation and hydrogen storage.



Expiration Dated Fingerprinting

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International Journal of Innovative Computing Information and Control, 6(3), 1271-1278 (2010)

Privacy protection is a critical aspect of the contents distribution service. This paper proposes the first anonymous fingerprinting scheme that provides “long-term” privacy, which is mainly designed for the expiration of copyright. The proposed scheme enables buyers to purchase copyrighted goods anonymously whereas the merchant can identify the original buyer of a redistributed copy and convince an arbiter of this fact. Once the copyright has expired, the buyers should be allowed to use the goods without identification. Thus, the proposed scheme prevents the merchant from obtaining any information on the original buyer of a copy after the expiration of its copyright. In this sense,

the proposed scheme provides the enhanced privacy for the legal buyers.



Biology

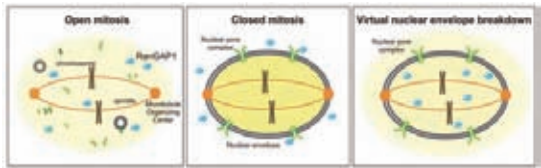
Virtual Breakdown of the Nuclear Envelope in Fission Yeast Meiosis

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Current Biology, 20, 1919-1925 (2010)

In higher eukaryotes, the nuclear envelope breaks down as the cell enters mitosis (designated “open” mitosis), while in many fungi, chromosome segregation takes place without NEBD (designated “closed” mitosis). In this paper, we described virtual nuclear envelope breakdown (V-NEBD) in the fission yeast Schizosaccharomyces pombe. In the V-NEBD, a mixing of nuclear proteins and

cytoplasmic proteins occurred transiently in meiosis without physical breakdown of the nuclear envelope, accompanied by the nuclear entry of the RanGAP1 protein. This translocation of RanGAP1 protein leads to collapse of the Ran-GTP gradient across the nuclear envelope and a barrier function of the nuclear envelope.



Ablation of C/EBP Homologous Protein Attenuates ER-mediated Apoptosis and Cardiac Dysfunction Induced by Pressure Overload

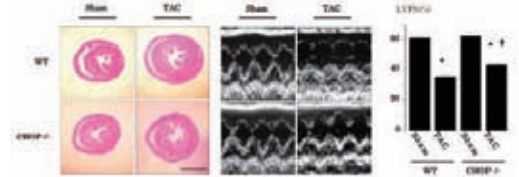
Fu, H.Y.; Okada, K.; Liao, Y.; Tsukamoto, O.; Isomura, T.; Asai, M.; Sawada, T.; Okuda, K.; Asano, Y.; Sanada, S.; Asanuma, S.; Asakura, M.; Takashima, S.; Komuro, I.; Kitakaze, M.; Minamino, T.  
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Circulation, 122, 361-369 (2010)

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Apoptosis contributes to the development of heart failure, but endoplasmic reticulum (ER)-initiated apoptosis and its involvement in the pathophysiology remains obscure. Because human failing hearts show enhanced expression of C/EBP homologous protein (CHOP) that mediates ER-initiated apoptosis, we performed transverse aortic constriction (TAC) on wild-type and CHOP-deficient mice to investigate the role of CHOP in heart failure

induced by pressure overload. We found the hearts of CHOP-deficient mice had less apoptotic cell death and limited protein translation, resulting in less cardiac hypertrophy, fibrosis and dysfunction compared with WT mice. Therefore, CHOP could be a logical target for heart failure treatment.



Role of Mechanical Stress-induced Glutamate Signaling-associated Molecules in Cytodifferentiation of Periodontal Ligament Cells

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Journal of Biological Chemistry, 285, 28286-28297 (2010)

Mechanical stress is one of the most important factors for maintaining the homeostasis of a variety of tissues. Periodontal ligament (PDL), which is a connective tissue interposed between the roots of teeth and inner wall of the bone socket, is also influenced by the mechanical stress, such as occlusal pressure. The signaling pathways linking mechanical stress to cell functions are still unclear. We have demonstrated that mechanical stress induces glutamate signaling in PDL, resulting in enhancement of cytodifferentiation and mineralization of PDL cells. These findings suggest that

mechanical stress-induced glutamate signaling is involved in homeostasis, remodeling and regeneration of periodontal tissues.

