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*Simulation of Greeks of multiasset options for time-changed Brownian motions by Malliavin calculus*

This talk will present simulation of sensitivities or Greeks of multi-asset European style options under a special Lévy process model - the time-changed or subordinated Brownian motions for the asset prices. Malliavin calculus combined with Monte Carlo and quasi-Monte Carlo methods is used in simulations. By using the chain rule, integration by parts, reflection principle, etc. from Malliavin calculus, as well as the tower property of conditional expectation, we are able to derive formulas of option Greeks in terms of the expectations of the option payoff functions multiplied by the weights involving Malliavin derivatives for multi-asset options. Numerical results show that the Malliavin calculus method is usually more efficient than the finite difference method for options with non-smooth payoffs. The superiority of the first over the second is even more significant when both are combined with quasi-Monte Carlo methods.