Summary in English

G.Almkvist and A.Meurman, *Jesus Guilleras formler för* $1/\pi^2$ *och superkongruenser* (Swedish).

Striking infinite series for $\frac{1}{\pi}$ have been given by Ramanujam and later the brothers Chudnovsky (who applied theirs to compute π with a billion decimals). In 2002 Guillera provided a series for $\frac{1}{\pi^2}$, which is, along with variations concerning congruences of partial sums, discussed at length. Intriguingly an old theorem by the Swedish mathematician Fritz Carlson, to the effect that any entire function vanishing on the non-negative integers and satisfying a bound $Ke^{c|z|}$ (with crucially $c < \pi$) on the right halfplane must vanish, comes into play. The authors also show how commercial packages such as Maple can be used effectively in the investigations. In particular they come up with their own examples and congruences, such as

$$\sum_{n=0}^{\infty} \binom{2n}{n}^4 \binom{3n}{n} \frac{74n^3 + 135n^2 + 69n + 6}{(n+1)^3} \frac{1}{2^{12n}} = \frac{64}{\pi^2}$$

The article ends with a series of exercises for the readers, some of them concerning Bernouilli numbers and polynomials, and an intriguing variation thereof introduced by Zagier.

Tom Britton, *Smittsamma sjukdomars matematik* (Swedish).

The article deals with the mathematics of infectuous diseases. First two simple deterministic models for infectuous spreads are considered. The first one concerns epidemies, which are of short dramatic duration and concern a fixed homogenuous population. The second deals with the endemic case, which lasts for a very long time, and in which the population is continually renewed. Both models involve a system of non-linear differential equations, from which one may observe some qualitative aspects, as well as derive the basis for quantitative simulations. In addition stochastic models, which are more realistic if more complicated, are introduced, along with a study of graphs to model social connectivity (particularly relevant for the spread of HIV). Finally the author discusses practical applications.

Ulf Persson, *Oktahedergruppen och dess generaliseringar II* (Swedish).

This is a second instalment in a planned series of three. This one considers the hypercube (the tesseract) and its dual in $\mathbf{R^4}$, and their common group of symmetries. In particular it makes a thorough study of the group, including its conjugacy classes and gives geometric interpretations and presents various projections.

Olav Gebhardt og Marius Overholt, *Et kombinatorisk kuriosum* (Norwegian).
Because of some misprints, this article originally found in Normat 2009:4 is reprinted in this issue.
Given n strands of black and white pearls, each of length k. Assume that each pair of strands agree in at least m more positions than they disagree, and that at each position the excess number of pearls of one color over the other across the strands is at most d. The authors find a necessary condition on n, k, m and d, and prove it both combinatorially and by linear algebra.