SURIS

1) Collective Lie-Poisson integrators on $\mathbb{R}^3$ (Mats)

2) Geometric properties of the Kahan's method (Antareep)

$$\dot{x} = q(x) \xrightarrow{\text{discr.}} \frac{x_{n+1} - x_n}{h} = b(x_n, x_{n+1})$$

(q: quadratic; b: associated bilinear)

Hamiltonian $\Rightarrow$ possesses an invariant measure and at least one integral

3) Hamel's formalism and variational integrators on a sphere. (Dominique)

4) Generating functionals and Lagrangian PDE's (Pedro)

5) Teaching the Kepler laws for freshmen. (Martin)

Bobenko

6) Projective configuration Reye 12_6 (Josef)

7) ——— " ——— Schläfli

8) Semi-discrete isothermic surfaces

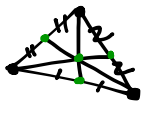
9) Curvature of triangle meshes via line congruences (Alex)
(Pottmann et al)

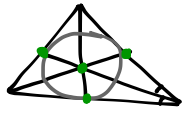
Möbius pair of tetrahedra / Cox thm → 8_4 configuration
i.e. 8 planes, each containing 4 vertices

Springborn

10) Iterated subdivision of triangles (Franziska)

↳ what kind of triangles does one obtain?

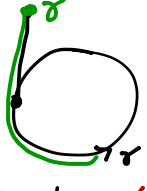




Heather
11) Menzin's conjecture (Sophie)

↳ Convergence of the tractrix of a closed curve

proven for convex curves with $A > \pi\ell^2$
→ most general conjecture



M 12) Rigidity of infinite hexagonal triangulations of the plane (Nadja)

M 13) Convex fundamental polygons (Robert)

14) Bräggers's variational principle (and circle packings with sheer) (Philipp)

Sullivan

15) Knot theory: colorings (survey paper) (René)

16) —— " ——: planar diagram codes → classification of knots

17) Tait-Kneser Thm (osculating circles)

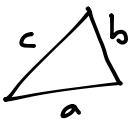
18) Local geometry of 2-surfaces in $\mathbb{R}^4$

19) Regular polytopes & Lie groups (Jakub)
(distinguished role of low dimensions)

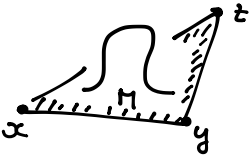
20) The three stooges of vector calculus (div, grad, curl)

Pinkall

21) Triangles in $\mathbb{CP}^n$ (seen as Riemannian manifold)



J



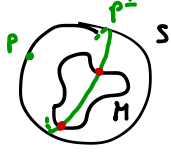
σ - 2-form on $\mathbb{CP}^n$

$$J = \int_M \sigma \qquad \frac{\langle x,y\rangle\langle y,z\rangle\langle z,x\rangle}{|\langle x,y\rangle\langle y,z\rangle\langle z,x\rangle|} = e^{iJ}$$

22) Integral geometry in $\mathbb{CP}^n$

$M^2 \subset \mathbb{CP}^n \longrightarrow \int_{\mathbb{CP}^n} \#(M \cap p^\perp)\, dp = c \int_M 1 + \cos\theta$ with $\theta(p)$ "Kähler angle"

Analogous in 1D:



$$c \int_{S^2} \#(M \cap p^\perp)\, dp = \underset{\text{length}}{L}(M)$$

23) Cohn Vossen's flexible flying saucer

24) Reeb's infinitessimally flexible surfaces of revolution (Sshorab)

25) Subdividing quad meshes by diamond kites