**ACCESS:** Who gets what access, when and how?

John Ball, President IMU

Jonathan Borwein, Chair CEIC
The IMU Executive and the CEIC strongly endorse this initiative and stand ready to assist

• to the degree that IMU/CEIC actions would be welcomed
  • and can be afforded

➢ For example a brief **best practice document** on
**Digitization** covering minimum standards for topics like
  - resolution, alignment, color standards,
  - compression, OCR, metadata
  - registration

➢ We see urgency
  - the window is closing rapidly
  - arguments over details must be settled or deferred
Importance of access to legacy scholarly mathematical literature: our patrimony

- convincing other disciplines via case studies?

• need sound Information Retrieval tools (IR)
  - meshing rich Metadata with Google expectations

• plus federated search/content dictionaries
  - use our CS/IT colleagues
    - 7 IR specialists at Dalhousie/4 at Waterloo, etc

• for engineers and economists not only area experts
  ✓ reproductive or algebraic K theory?
Sample approach: CMS

A Prototype for the Federated World Directory of Mathematicians (FWDM)
Strengthens current journal publishing system through enhancement (value added to current/future journal runs)

- Coherent reference linking
- Cross discipline linking
- Application linking
- Object level meta-data
- Compatibility not uniformity

- adding value to the publishing cycle whether or not a direct purchase is made
Compatibility with current and emerging forms of mathematical publishing

- Mathematical OCR
  - launching from/to applications
    - Excel, NIST, Maple, SketchPad, Dictionaries …

- Graphics
  - ((3)(6))00 dpi is valuable?
    - images
    - old manuscripts

- Zeroes of 0-1 polynomials (15%)

- Good electronic design is fairly robust
  - Organic Math (1994)
Zeroes of 0-1 polynomials (200%)
Riemann 1859 before and after PhotoShop
**Universal Access Principle.** Material beyond the “moving wall” should be freely available to all

- important for the individual
- important for development of science
- important for publishers
  - otherwise there will be fewer links to material behind the moving wall
  - part of a “contract” with the mathematical community, which referees papers and populates editorial boards
- access costs
  - easier to solve on institutional than individual basis
Open Access (author pays) Model is ill suited to mathematics

- puts mathematical publishing at the mercy of university administrators and wealthier disciplines
- might grade mathematicians according to their ability to pay more or less expensive publication charges
Development aspects in light of limited (library) infrastructure in the developing world (DCSG)

- Internet has removed major obstacles to scientific research in the developing world - especially true in mathematics (WDML)

It is in long-term interest of publishers to promote research in developing countries

- **mechanisms are not obvious** ("countries" are not internally homogeneous)
- free or low-cost access to current material for the poorest countries.

  INASP
  ICTP Document delivery service
- moving wall should be eliminated or varied for developing countries

- IMU Developing Countries Strategy Group should interact with WDML
The Future …

- UCLP for
  - visualization
  - learning objects
  - haptics …
The Future …

Touch sensitive interactive DDRIVE

Immersive Polyhedra

and the 3D GEOWALL