



2023: 60th Anniversary of Bridgestone Motorsport
“Challenge for Excellence” Next Stage

Technology development
for “ultimate customization”
through sustainable global
motorsports activities

December 15, 2023

Bridgestone Corporation
Vice President and Senior Officer, Product Development
Akio Kusano

Motorsports is Bridgestone's origin

Tires carry life

Extreme conditions

Thorough testing

"Developing Talent"
"Refining Technology"

Mastering

Mobile laboratory

Support the development of motorsports culture

Challenge for excellence

Motorsports is Bridgestone's origin

Customization for teams and drivers



Respect for being on-site



Real × Digital



Bridgestone DNA

Focus on quality

Respect for being on-site

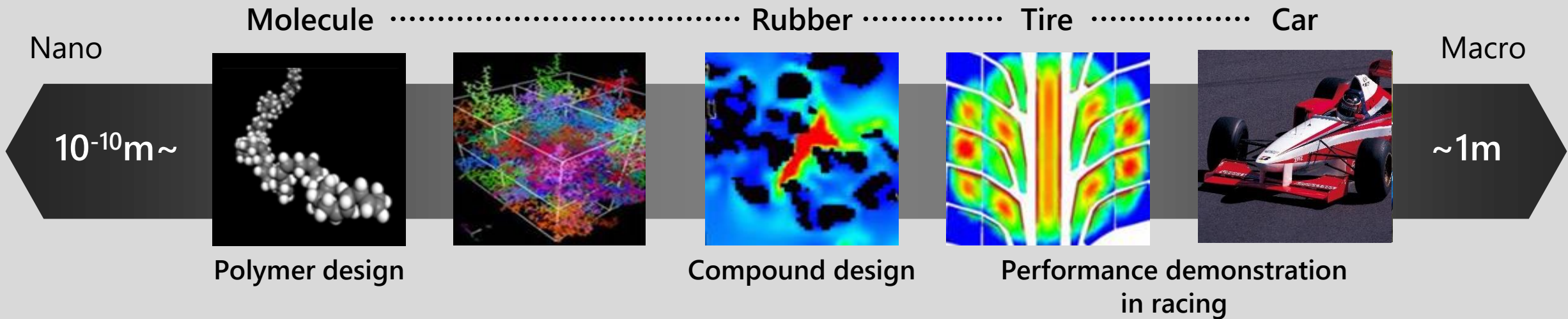
Being attentive and supportive of customer problems

Challenge

Refine Bridgestone DNA combining real and digital through the “challenge for excellence”

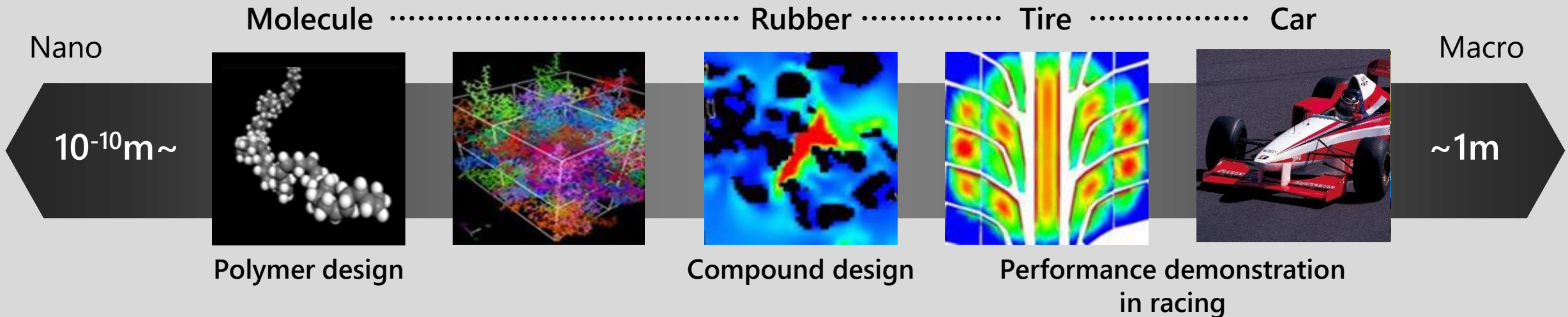
Bridgestone's core technology developed through motorsports

Develop polymer design on a molecule level to performance verification of tires all at once



Bridgestone's core technology developed through motorsports

Develop polymer design on a molecule level to performance verification of tires all at once



Mastering rubber

Transfer technology refined through motorsports to replacement tires

Ex. BLIZZAK VRX3
REGNO GR-XIII
TURANZA EV



Bridgestone's core technology development – Next stage –

From Circuit to Street

EV

High loading / High Torque



Motorsports

High speed / High severity

Realize customer delight in the evolving mobility

Tire for EVs

- High wear resistance (respond to high torque)
- Extremely low RRC (contribute to electricity consumption efficiency)

Driving performance

- Strong and robust (withstand high severity on tires)
- High grip (transmit high engine power)

Environmental performance

- Improve resource productivity
- Enhance material circularity

Performance under extreme conditions

- Respond to all weather conditions (wet & dry)
- Stability under diverse input conditions (perform over a wide temperature range)

**Empower each and all to achieve their best
Be essential to the future of mobility**

“Mobile laboratory”

Evolve technology through
the “Challenge for excellence”

Mastering rubber

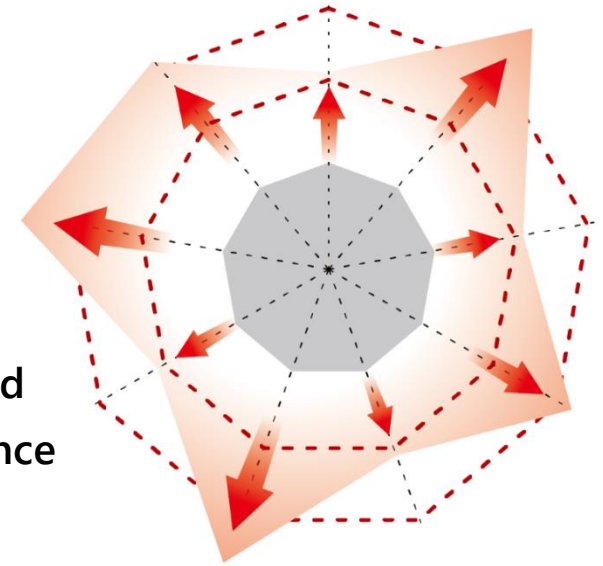
Mastering road contact

Lead to drive sustainability

Co-creation / Real × digital / Global

BRIDGESTONE
ENLITEN

Elevate all conventional performance and
further customize desired tire performance
by customer and vehicle type



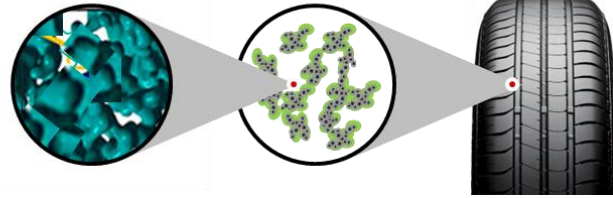
“Ultimate customization”

“thinner, rounder, lighter ”

Mastering rubber

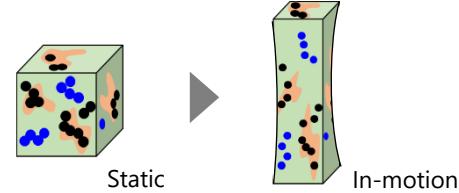
Evolution of technology to "see" rubber : Dan-Totsu analysis technology

The structure of rubber and molecule can be **observed more clearly**



Nano level observation using next-generation synchrotron radiation facility (NanoTerasu)

The state of motion will also be **more clearly visible**



Further evolution through co-creation

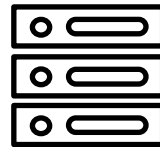


Tohoku Univ. / NanoTerasu
Bridgestone / BIP
Formed R&D team to enable innovative material development

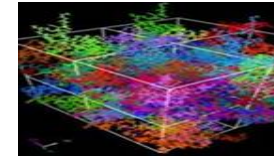
Evolution of technology to "analyze": Data-driven material development

Extensive knowledge from the past

Unique material synthesis evaluation system



- Indoor evaluation data
- Environmental indicators
- Material data
- Market data



Bridgestone's database

AI data analysis

Unique simulation

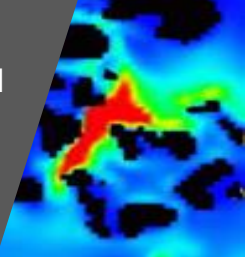
Real

State-of-the-art material informatics

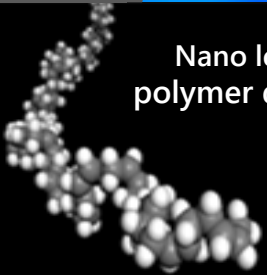
Digital



Micro level compound design



Nano level polymer design



Develop fundamental technology to "see", "analyze" and "manage" rubber

"Mastering rubber" through motorsports

- Next stage -

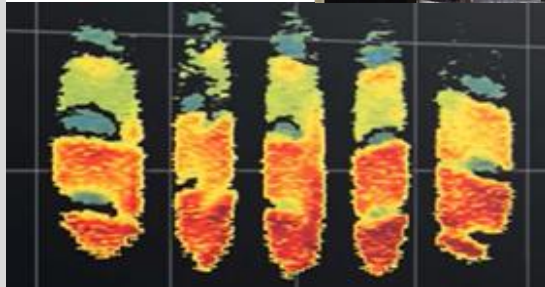
Create new value based on deep understanding the nature of rubber

Enhance wear resistance and grip performance
Reduce rolling resistance

Evolve technology to "see" and "analyze" rubber based on technologies developed through motorsports tires development
Drive agile development and co-creation through "real x digital": Elevate "mastering rubber" to the next stage

* Courtesy of Japan Photonics Innovation Center

Mastering road contact

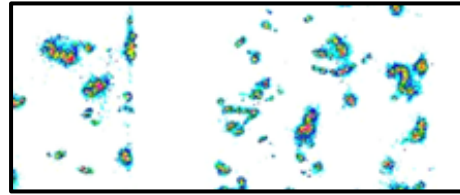


Develop fundamental technology to "see" road contact condition

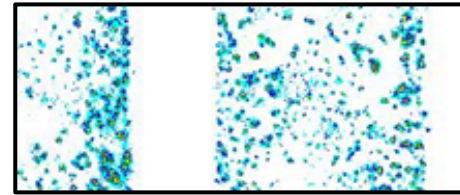
ULTIMAT EYE - Evolution of technology to "see" road contact

Reproduce road surface conditions with high accuracy

Rough road surface (circuit)



Fine road surface (urban area)



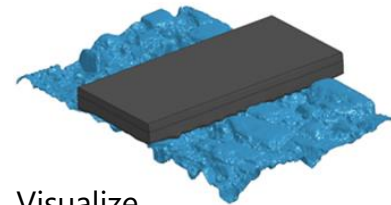
Visualize contact condition on any type of road surface

Real

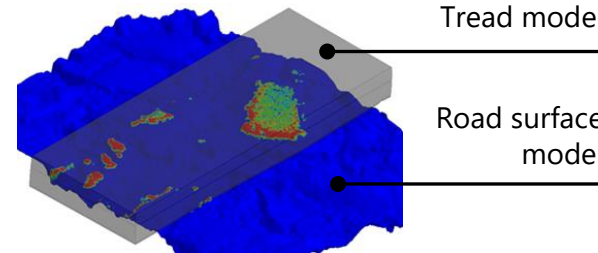
Evolution of simulation technology

Accurately predict tire performance under any road surface and road contact condition

Digital



Visualize tire deformation condition



Tread model

Road surface model

"Mastering road contact" through motorsports
- Next stage -

Create new value based on deep understanding the nature of road contact
Enhance wear resistance and grip performance

Analyze various contact conditions between road and tires through "real x digital" and make hypothesis, prototype and verify
Refine technologies faster through the development of motorsports tires used in extreme conditions and accelerate agile development

Lead to drive sustainability

Enhance and diversify recycled and renewable material
Strive to realize chemical recycle



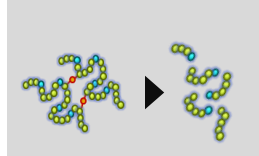
Guayule
(Diversification of natural rubber)



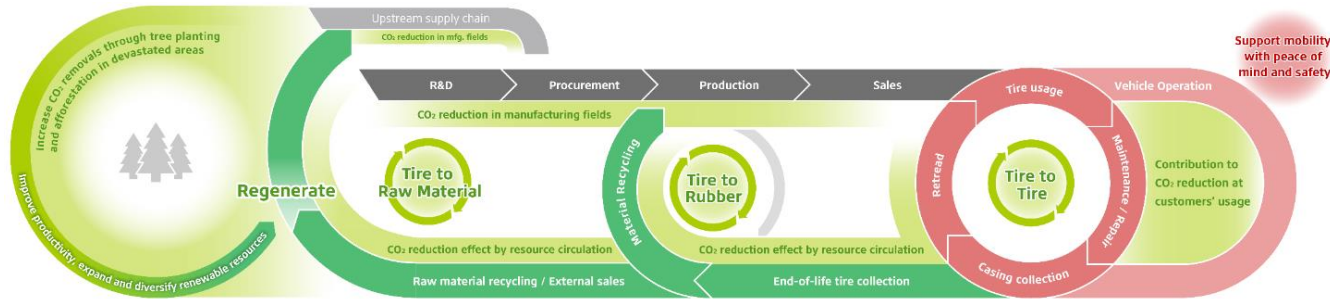
Rice husk silica
(Reinforcement material for tires)



Reinforcement fiber
derived from recycling



Rubber biodegradable
technology (MoonShot)



Natural rubber plantation
management



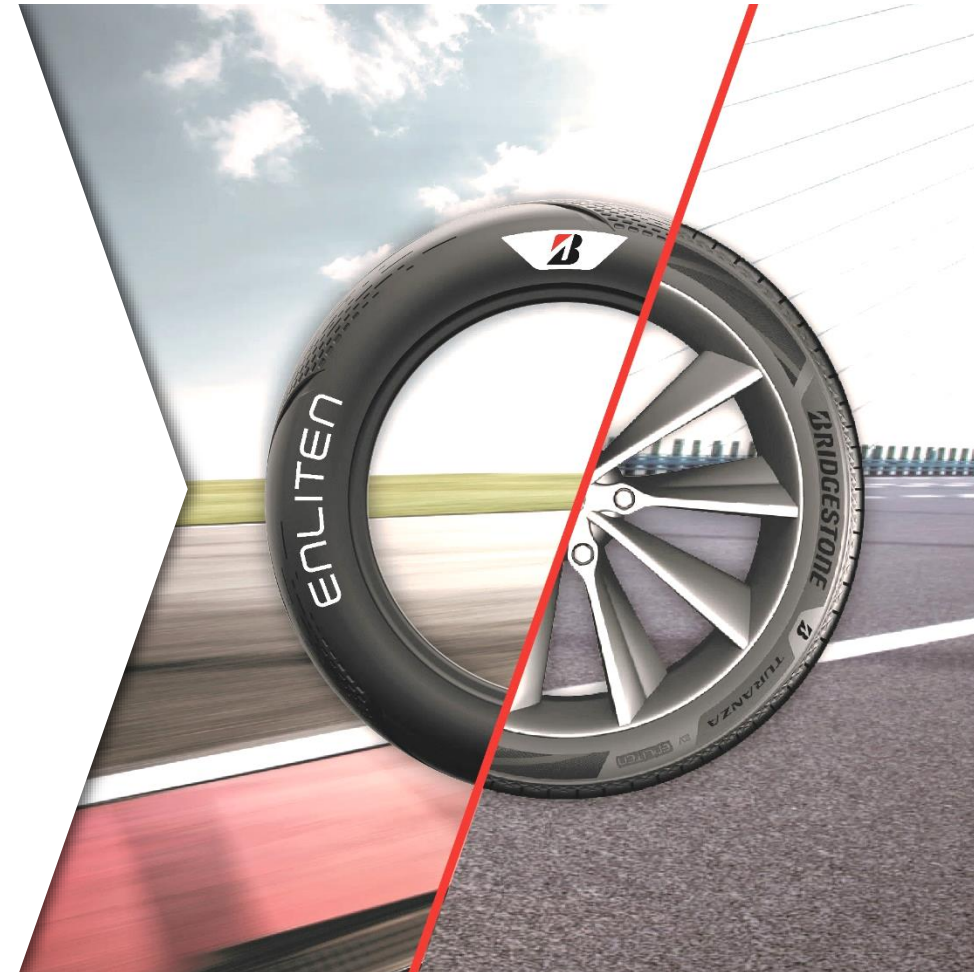
Tire recycle technology
(Green Innovation Fund)



Recycled carbon black/
Recycled rubber



Easy-to-reuse rubber



Refine sustainable material technology with our co-creation partners and establish the ecosystem for our sustainability business model



Demonstrate with motorsports tires used in extreme conditions



Expand to replacement tires

* These results were obtained as a result of work commissioned by the New Energy and Industrial Technology Development Organization (NEDO) (JPNP21021).

“Mobile laboratory”

Evolve technology through
the “Challenge for excellence”

Mastering rubber

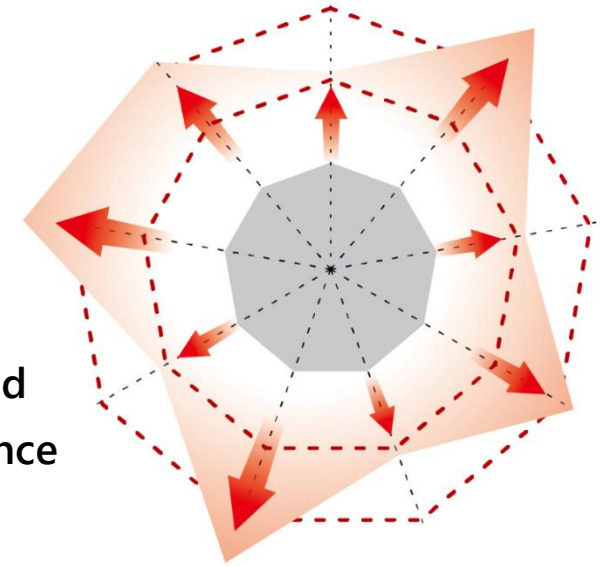
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