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measurements of individual filament-filament interactions . 56 -- 4.7
 Analysis of the interaction data 58 -- 4.8 Microrheology of reconstituted
 vimentin networks . 60 -- 4.9 Analysis of microrheology experiments .
 61 -- 4.10 Imaging filament networks 63 -- 4.11 Imaging single
 filaments 63 -- 4.12 Analysis of filament lengths 64 -- 4.13 Finite
 element simulation of the microfluidic flowcell . 64 -- 4.14 Stretching
 MDCK II cells on elastic substrates . 65 -- 4.15 Analysis of images of
 stretched cells . 68 -- references 70 -- 5 tuning intermediate filament
 mechanics by variation of -- ph and ion charges 75 -- 5.1 Introduction
 . 76 -- 5.2 Results and discussion . 77 -- 5.2.1 Cations stiffen single
 vimentin IFs 77 -- 5.2.2 Stretching vimentin filament bundles 81 --
 5.2.3 IF mechanics adapt to pH changes 82 -- 5.2.4 IF stiffening
 saturates at low pH . 83 -- 5.2.5 Variations in the free energy
 landscapes influence filament mechanics 85 -- 5.3 Conclusions . 90 --
 references 91 -- 6 multiscale mechanics and temporal evolution of
 vimentin -- intermediate filament networks 97 -- 6.1 Introduction . 98
 -- 6.2 Results and discussion . 98 -- 6.2.1 Vimentin filament networks
 mature and stiffen on time scales of days 98 -- 6.2.2 The filament
 length depends on elongation and lateral association 100 -- 6.2.3
 Electrostatic and hydrophobic interactions lead to mechanically distinct
 networks 101 -- 6.2.4 Maturation of networks is concentration
 dependent 104 -- 6.2.5 Surface effects modify network structures .
 105 -- 6.2.6 Single filament mechanics are unaffected by detergents or
 divalent ions . 107 -- 6.2.7 Electrostatics increase single filament-
 filament interactions 108 -- 6.2.8 Interactions are independent of
 binding-site encounter rate 112 -- 6.2.9 A two-state model accurately
 describes network mechanics 112 -- 6.3 Conclusions . 113 -- 6.4
 Outlook 115 -- 6.4.1 Entropic and elastic stretching of single vimentin
 filaments 115 -- 6.4.2 Single interactions of pre-strained filaments 117
 -- references 119 -- 7 response of actin and keratin structures to
 isotropic cell stretching 125 -- 7.1 Introduction . 125 -- 7.2 Results
 and Discussion . 126 -- 7.2.1 Equibiaxial stretching of PDMS devices .
 126 -- 7.2.2 The cell area increases during isotropic stretching . 128
 -- 7.2.3 Actin stress fibers disassemble at increasing cell extension
 129 -- 7.2.4 The keratin structure adapts to increasing strains . 131 --
 7.3 Conclusion 133 -- references 133 -- 8 discussion and conclusion
 137 -- references 140 -- appendix 145 -- a supporting information:
 tuning intermediate filament mechanics by variation of ph and ion
 charges 145 -- a.1 Flow simulations 145 -- a.2 Single force-strain
 curves . 147 -- b supporting information: multiscale mechanics and
 temporal evolution of vimentin intermediate filament networks 149 --
 b.1 Additional information for elongation measurements . 149 -- b.2
 Data analysis of microrheology measurements . 152 -- b.3 Modeling
 single interactions 161 -- c supporting information: response of actin
 and keratin structures to isotropic cell stretching 167 -- references
 169 -- Acknowledgments 172 -- List of acronyms 174 -- Publications
 176.

Sommario/riassunto

The mechanical properties of cells are largely determined by the cytoskeleton. The cytoskeleton is an intricate and complex structure formed by protein filaments, motor proteins, and crosslinkers. The three main types of protein filaments are microtubules, actin filaments, and intermediate filaments (IFs). Whereas the proteins that form microtubules and actin filaments are exceptionally conserved throughout cell types and organisms, the family of IFs is diverse. For example, the IF protein vimentin is expressed in relatively motile fibroblasts, and keratin IFs are found in epithelial cells. This variety of IF proteins might therefore be linked to the various mechanical properties of different cell types. In the scope of this thesis, I combine

studies of IF mechanics on different time scales and in systems of increasing complexity, from single filaments to networks in cells. This multiscale approach allows for the simplification necessary to interpret observations while adding increasing physiological context in subsequent experiments. We especially focus on the tunability of the IF mechanics by environmental cues in these increasingly complex systems. In a series of experiments, including single filament elongation studies, single filament stretching measurements with optical tweezers, filament-filament interaction measurements with four optical tweezers, microrheology, and isotropic cell stretching, we characterize how electrostatic (pH and ion concentration) and hydrophobic interactions (detergent) provide various mechanisms by which the mechanics of the IF cytoskeleton can be tuned. These studies reveal how small changes, such as charge shifts, influence IF mechanics on multiple scales. In combination with simulations, we determine the mechanisms by which charge shifts alter single vimentin filament mechanics and we extract energy landscapes for interactions between single filaments. Such insights will provide a deeper understanding of the mechanisms by which cells can maintain their integrity and adapt to the mechanical requirements set by their environment.

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Note generali	Description based upon print version of record.
Nota di contenuto	Frontmatter -- Contents -- Digging into Digital Roots. Towards a Conceptual Media and Communication History -- Technologies and Connections -- Networks -- Media Convergence -- Multimedia -- Interactivity -- Artificial Intelligence -- Agency and Politics -- Global Governance -- Data(fication) -- Fake News -- Echo Chambers -- Digital Media Activism -- Users and Practices -- Telepresence -- Digital Loneliness -- Amateurism -- User-Generated Content (UGC) -- Fandom -- Authenticity -- Authors
Sommario/riassunto	As media environments and communication practices evolve over time, so do theoretical concepts. This book analyzes some of the most well-known and fiercely discussed concepts of the digital age from a historical perspective, showing how many of them have pre-digital roots and how they have changed and still are constantly changing in the digital era. Written by leading authors in media and communication studies, the chapters historicize 16 concepts that have become central in the digital media literature, focusing on three main areas. The first part, Technologies and Connections, historicises concepts like network, media convergence, multimedia, interactivity and artificial intelligence. The second one is related to Agency and Politics and explores global governance, datafication, fake news, echo chambers, digital media

activism. The last one, Users and Practices, is finally devoted to telepresence, digital loneliness, amateurism, user generated content, fandom and authenticity. The book aims to shed light on how concepts emerge and are co-shaped, circulated, used and reappropriated in different contexts. It argues for the need for a conceptual media and communication history that will reveal new developments without concealing continuities and it demonstrates how the analogue/digital dichotomy is often a misleading one.
